

## PRIORITY BIRD SPECIES: INFORMATION, ISSUES, AND RECOMMENDATIONS

### Level I (Conservation Action)

Species that clearly need conservation action (CA). Declining population trend and/or habitat loss may be significant. Includes species of which Wyoming has a high percentage of and responsibility for the breeding population (R), monitoring (M), and the need for additional knowledge (K) through research into basic natural history, distribution, etc.

#### ***American Bittern***

Primary Habitat Type: Wetlands

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
American Bittern  (AMBI) <i>Botaurus lentiginosus</i> Level I CA, M, K	~Cattails, bulrushes, reeds, sedges	~Tall, dense emergent vegetation ~May also nest in idle, dense, tall grasslands ~Prefers wetlands with open water in the center, gradual slopes, a band of emergent vegetation around the periphery, and idle grassland in the adjacent uplands	~Prefers wetlands >7 acres ~Nests above shallow water (1 to 24 inches)	~Dependent on marsh habitats	~Solitary nester, but may form loose colonies in favorable habitat ~Winters south to southern Mexico, Greater Antilles

Scattered throughout Wyoming in marsh habitat. Is totally dependent on wetland habitats; usually inhabits marshes with open water in the center, gradual slopes, a band of emergent vegetation around the periphery, and idle grassland in the adjacent uplands. Prefers large wetlands, at least 7 acres (3 ha), with tall, dense emergent vegetation such as cattails, bulrushes, and reeds. Builds a well-hidden platform nest of sticks and vegetation a few inches above shallow water or mud. Occasionally nests in dense, idle grassland habitat. Nest may be partially covered by an arch of vegetation. Eggs (2 to 7, 49 mm) are buff-brown to olive-buff. Usually a solitary nester, but may form loose colonies in favorable habitat. Uses separate entrance and exit paths to the nest. Diet is varied and includes any small animal that it can catch, primarily frogs, fish,

and aquatic invertebrates. Young are fed regurgitant. Winters south to southern Mexico and the Greater Antilles. Declining population is likely caused by loss of marsh habitat. A decline in frog populations may contribute to the decline in American Bitterns. Breeding habitat in Wyoming is disjunct, secure breeding sites are limited in distribution, and the suitability and availability of breeding sites can be unstable between years due to fluctuations in water levels and changes in land use practices. Other species that may benefit from habitat management for this species include the Western Grebe, Clark's Grebe, Wilson's Phalarope, Forster's Tern, Black Tern, and Marsh Wren.

### **Population Objectives**

- 1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the American Bittern in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Maintain a minimum of three American Bittern breeding locations in Wyoming.

### **Habitat Objectives**

- 1) Maintain wetland complexes in a variety of stages and conditions, including tall, dense emergent vegetation and idle adjacent uplands where American Bitterns occur.
- 2) Maintain water quality to sustain substantial populations of fish, amphibians, and invertebrates as a food source for American Bitterns.

### **Recommendations**

- 1) Maintain a complex of wetlands of sufficient size [50 to 450 acres (20 to 180 ha)] to provide habitats at various stages of succession.
- 2) Implement wetland management techniques that provide marshes with tall, dense, emergent vegetation and shallow water.
- 3) Maintain water levels at less than 24 inches (61 cm) and keep water level fluctuations to within a few inches throughout the breeding season (April through August). Avoid complete drawdowns before mid-August. Because American Bitterns build nests just above the water's surface, water level increases can flood nests, while decreases can leave nests and young exposed to predators. Also, during molting, bitterns need relatively deep, stable waters to provide adequate food and protection from predators. Use slow drawdowns to mimic natural wetland succession.

- 4) Protect wetlands from drainage.
- 5) Protect wetlands from siltation, eutrophication, chemical contamination, and other forms of pollution. Maintain vegetation buffer zones to block siltation, pesticide, and fertilizer runoff into wetlands. This is particularly important where American Bitterns nest adjacent to agricultural land, and are vulnerable to contamination from agricultural runoff.
- 6) Manage stock ponds to allow a wide strip of emergent vegetation to grow.
- 7) In areas where American Bitterns nest in upland vegetation, avoid mowing, burning, or grazing more often than every two to five years.

### ***Trumpeter Swan***

Trumpeter Swan (*Cygnus buccinator*) would appear here based on priority, but this species will not be addressed in the Wyoming Bird Conservation Plan because issues, management strategies, and population goals are already addressed in the Trumpeter Swan Recovery Plans (Pacific Flyway Study Committee 2002, Patla 2001, Subcommittee on Rocky Mountain Trumpeter Swans 1998).

### ***Bald Eagle***

Bald Eagle (*Haliaeetus leucocephalus*) would appear here based on priority, but this species will not be addressed in the Wyoming Bird Conservation Plan because issues, management strategies, and population goals are already addressed in the Bald Eagle Recovery Plan (U.S. Fish and Wildlife Service 1986).

## Northern Goshawk

Primary Habitat Types: High Elevation Conifer, Mid Elevation Conifer, and Aspen

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Northern Goshawk  (NOGO) <i>Accipiter gentilis</i> Level I CA, M	~Nest sites associated with pure and/or mixed stands of ponderosa pine, lodgepole pine, and Douglas-fir intermingled with mature stands of aspen; in proximity to shrub/grass openings for foraging	~Mature stands of $\geq 50$ acres and $\geq 70\%$ canopy closure for successful breeding ~Dense canopy with interspersed small openings ~Snags, downed logs, and woody debris ~Open understory with a grass/forb/shrub component	~Elevation 4,000 to 10,000 feet where habitat requirements are present ~Nests are often located near water and in areas with sufficient prey base	~High density of trees with $\geq 8$ inches dbh ~Near water ~Prefers NE aspect for nest site on bench or gradual slope ~Within 400 yards of 1 acre clearings ~Aspen stands near running water or pine stands within 500 yards of running water	~Aspen regeneration via forest management techniques (e.g. fire, thinning) is needed ~Sensitive to disturbance at nest site from nest construction through 20 days post-hatch ~Prey availability may primarily dictate the portions of populations that migrate and selection of wintering areas ~Year-round resident in Wyoming

Found across most of Wyoming in mixed coniferous forest habitat. Prefers to nest in Douglas-fir and lodgepole pine forests and aspen stands, particularly dense old growth conifers, but forages in a variety of habitats. Prefers blocks of nesting habitat 200 acres (80 ha) in size that contain small openings. Nest stands are often either on slopes with northerly exposures or in drainages or canyon bottoms protected by such slopes. Requires water within  $\frac{1}{4}$  mile (0.4 km) of the nest site. Builds a platform nest of sticks, lined with bark and fresh sprigs of evergreen, in a large conifer or aspen, 20 to 60 feet (6 to 18 m) above ground. Eggs (3 to 4, 59 mm) are bluish-white to off-white. May reuse nest site in successive years. Chases and catches its prey in midair or seeks prey in a low searching flight. Feeds mainly on birds and also small mammals. Is a year-round resident in Wyoming. Generally remains on its breeding territory throughout the year, but those at higher elevations may shift to lower elevations in the fall. Habitat loss and conversion due to timber harvesting and urbanization can affect populations. Human disturbances may cause nest abandonment. Other species that may benefit from habitat management for this species include the Black-backed Woodpecker,

Hammond's Flycatcher, Blue Grouse, Clark's Nutcracker, Mountain Chickadee, Western Tanager, and Cassin's Finch.

### **Population Objectives**

- 1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Northern Goshawks have been detected on 19 BBS routes in Wyoming, including 5 routes on which they were observed a minimum of 3 years.
  - a) Maintain Northern Goshawks on the 19 BBS routes on which they were observed (Figure 11).
  - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.
- 3) Develop a cooperative, statewide, interagency/non-governmental organization database on Northern Goshawk nest sites, with data sensitivity built in.

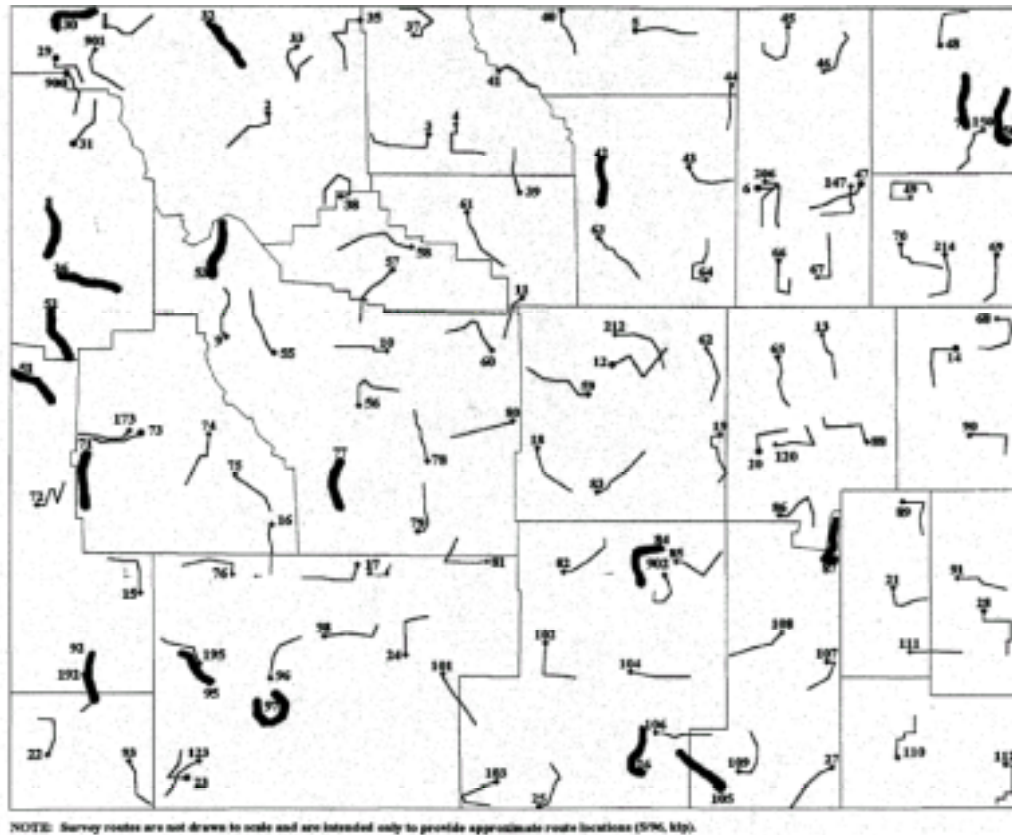


Figure 11. Bold lines indicate Breeding Bird Survey routes on which Northern Goshawks have been observed from 1968 through 2002.

### Habitat Objectives

- 1) Reintroduce disturbance into forest stands to provide nesting habitat through long-term management for aspen regeneration, stands of mature aspen, and mature conifer forests with large trees.
- 2) Maintain adjacent shrub/grass communities to ensure high densities of prey species are available.
- 3) Maintain forest stands of at least 50 acres (20 ha) with at least 70% canopy closure and trees with greater than 8 inches (20 cm) dbh in areas where Northern Goshawks occur.

### Recommendations

- 1) Avoid disturbing nest sites from April 1<sup>st</sup> through August 15<sup>th</sup> (nest construction through 20 days after the young hatch). Establish a spatial buffer for nest sites at 1/4 to 1/3 mile (400 to 500 m).

- 2) Implement forest management techniques in areas managed for Northern Goshawks that favor mature aspen stands and aspen regeneration in ponderosa pine, lodgepole pine, and Douglas-fir forests.
- 3) Provide an interspersed mosaic of structural stages – young to old forests – to increase the diversity of habitat for goshawks and their many prey species.
- 4) Provide small, scattered openings [less than 4 acres (1.6 ha)] in dense, mid-aged forests to benefit Northern Goshawks.
- 5) Provide at least 3 large snags per acre [at least 18 inches (45 cm) dbh, at least 30 feet (9 m) tall], and at least 5 large downed logs per acre [at least 12 inches (30 cm) in diameter and greater than 8 feet (2.4 m) long] to maintain habitat for goshawk prey species.
- 6) Protect areas traditionally used by Northern Goshawks, as nest areas are often used more than one year, and some are used intermittently for decades.

### ***Swainson's Hawk***

Primary Habitat Type: Plains/Basin Riparian

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Swainson's Hawk  (SWHA) <i>Buteo swainsoni</i> Level I CA, M	~Cottonwood ~Rocky Mountain juniper ~Trees of any species where trees are present, or shrubs if trees are absent, or cliffs if both are absent	~Trees and shrubs for nests and roosts ~Open understory	~Elevation <9,000 feet ~Flat to gently rolling terrain	~Open areas for foraging ~≤30% cultivated croplands	~Nest fidelity ~Winters in South America

Found throughout most of Wyoming. Inhabits prairies, plains, deserts, large mountain valleys, savannahs, open pine-oak woodlands, and cultivated lands with scattered trees. Builds a large, platform stick nest about 2 to 4 feet (0.6 to 1.2 m) across and 1 foot (0.3 m) high in an isolated tree; occasionally nests on the ground, a low cliff, rocky pinnacle, or cutbank. May build its nest 100 feet (30 m) above ground in a large cottonwood, or lower in a willow or shrub. Often reuses the same nest each year, or uses an old nest of another bird, especially magpie, as the base for its nest. Eggs (2 to 3, 57 mm) are white and sparsely marked with dark brown blotches. Soars at high

altitudes in search of prey. May also hunt from a perch, such as a fence post or low tree, or from a vantage point on the ground. Feeds mostly on small mammals, but will also take small birds, lizards, snakes, frogs, toads, and large insects. Winters in southern South America. Populations have declined due to loss of native grasslands and nest trees, conversion of suitable agricultural land to urbanization, pesticide use (especially on the wintering grounds), and shooting during migration. Other species that may benefit from habitat management for this species include the Red-tailed Hawk, Ferruginous Hawk, Rough-legged Hawk, Golden Eagle, American Kestrel, Mourning Dove, Great Horned Owl, Western Kingbird, Eastern Kingbird, and Loggerhead Shrike.

### **Population Objectives**

- 1) Determine statewide population trend data by implementing “Monitoring Wyoming’s Birds: The Plan for Count-based Monitoring”.
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Swainson’s Hawks have been detected on 85 BBS routes in Wyoming, including 45 routes on which they were observed a minimum of 3 years.
  - a) Maintain Swainson’s Hawks on the 85 BBS routes on which they were observed (Figure 12).
  - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.
- 3) Implement long-term (minimum 5 to 10 years) population trend monitoring in plains/basin riparian habitat using aerial surveys that determine nest occupancy and productivity in years with normal or high prey availability, and presence/absence (total number) monitoring in years with low prey availability. (This is especially important following the demise of over 5% of the world’s population of Swainson’s Hawks in 1995 on their wintering grounds due to accidental poisoning from the pesticide monocrotophos.)
- 4) Develop a cooperative, statewide, interagency/non-governmental organization database on Swainson’s Hawk nest sites, with data sensitivity built in.

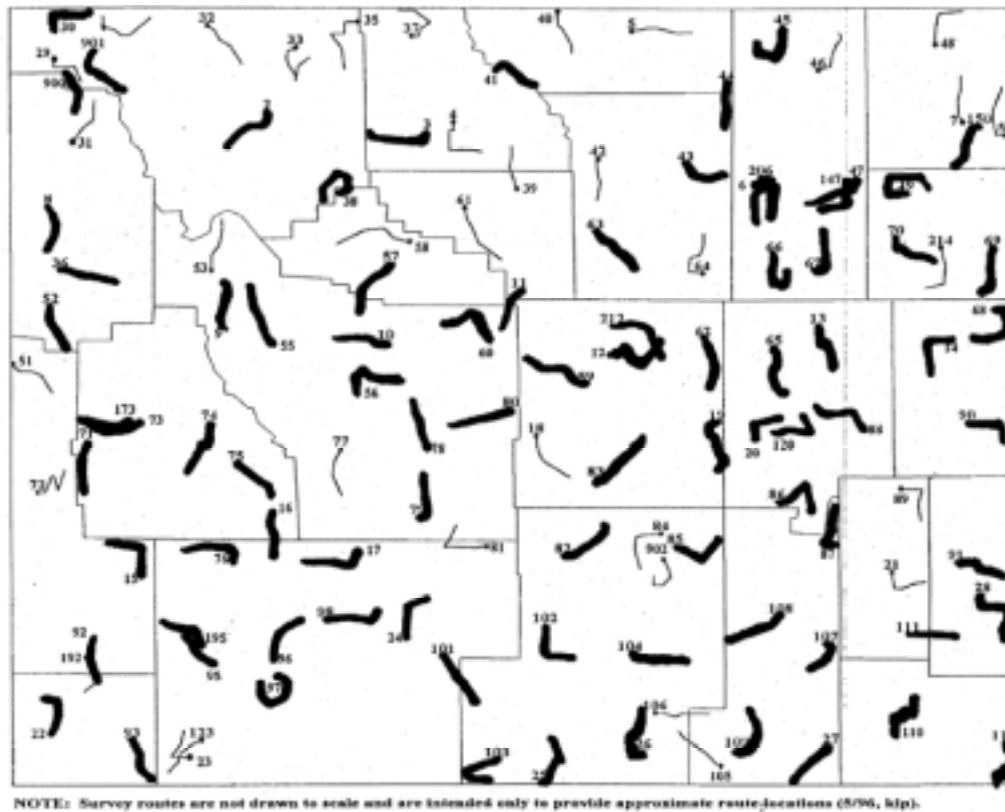


Figure 12. Bold lines indicate Breeding Bird Survey routes on which Swainson's Hawks have been observed from 1968 through 2002.

### Habitat Objectives

- 1) Maintain and restore a dynamic plains/basin cottonwood gallery with a higher emphasis on mid and late seral stages of deciduous trees and shrubs.
- 2) Minimize loss of existing plains/basin cottonwood habitat, and strive to increase the amount of this habitat type in appropriate sites statewide.
- 3) Preserve trees that already contain Swainson's Hawk nests, since breeding pairs often use the same nest year after year.
- 4) Ensure cottonwood regeneration for multi-storied canopy in riparian habitat and suitable upland sites (e.g. old homesteads and shelterbelts).
- 5) Link existing and restored plains/basin riparian habitat where feasible. (This will help reduce the potential of sink habitats.)

6) Work cooperatively with other agencies, organizations, and individuals to determine Swainson's Hawk habitat status and management strategies on the non-breeding grounds.

### **Recommendations**

1) Implement riparian Best Management Practices that emphasize protection and establishment of woody species, especially cottonwood riparian habitats.

2) Avoid disturbing nest sites from May 1<sup>st</sup> through August 31<sup>st</sup>.

3) Protect nest trees from livestock rubbing with fencing or other barriers.

4) Minimize control programs that reduce populations of Swainson's Hawk prey, especially rodents and grasshoppers.

## ***Ferruginous Hawk***

Primary Habitat Types: Shrub-steppe and Shortgrass Prairie

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Ferruginous Hawk  (FEHA) <i>Buteo regalis</i> Level I CA, M	~Vegetation that supports rabbit, ground squirrel, prairie dog, and pocket gopher populations	~Vegetation height of 6 to 24 inches	~Elevation 4,500 to 7,500 feet	~Open landscape ~Level or rolling terrain ~Rock outcrops, hills, buttes, cliff tops, or isolated trees (if available) for nest site placement ~Tree nests are 6 to 40 feet above ground ~Prefer 250 acres or more for nesting	~Very susceptible to human disturbance during nesting (lower reproductive success with increased disturbance) ~Will use artificial nest structures ~Recommend a 1-mile buffer around the nest from 1 April through 31 July ~Frequent nest site fidelity ~Moderate livestock grazing may be beneficial for prey abundance ~Fire can be beneficial (leave 15% in undisturbed condition on a landscape scale) ~Winters in Mexico

Found across Wyoming in open basin and grassland habitats. Inhabits prairies, plains, deserts, and grasslands. Requires large tracts of relatively undisturbed habitat, areas normally associated with low levels of grazing. Builds a bulky platform stick nest 3 feet (1 m) across and 2 feet (0.6 m) tall on the ground, usually on a knoll, rock outcrop, or streambank, adjacent to open areas such as grasslands or shrublands. May use the same nest year after year, adding more sticks each year – some Ferruginous Hawk nests are over 10 feet (3 m) tall. Will also nest up to 40 feet (12 m) above ground in trees that provide a commanding view. Eggs (2 to 4, 61 mm) are white or off-white and marked with brown blotches. Swoops down and pounces on prey from the air. Feeds mostly

on small mammals, especially ground squirrels, prairie dogs, and jackrabbits, but will also eat small birds, snakes, lizards, and large insects. Winters south to central Mexico. Population declines are due to conversion of native prairie to cropland or other uses, conversion of native prairie to nonnative vegetation, urbanization, and disturbance of nesting birds. Severe overgrazing could affect site selection by causing a decline in the regeneration of willow. Other species that may benefit from habitat management for this species include the Swainson's Hawk, Red-tailed Hawk, Rough-legged Hawk, Golden Eagle, American Kestrel, Mountain Plover, Mourning Dove, Great Horned Owl, Burrowing Owl, Western Kingbird, Eastern Kingbird, and Loggerhead Shrike.

### **Population Objectives**

- 1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Ferruginous Hawks have been detected on 74 BBS routes in Wyoming, including 48 routes on which they were observed a minimum of 3 years.
  - a) Maintain Ferruginous Hawks on the 74 BBS routes on which they were observed (Figure 13).
  - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.
- 3) Continue gathering population trend and productivity data from ongoing inventory and monitoring studies in the Rawlins area and in northeast and east-central Wyoming.

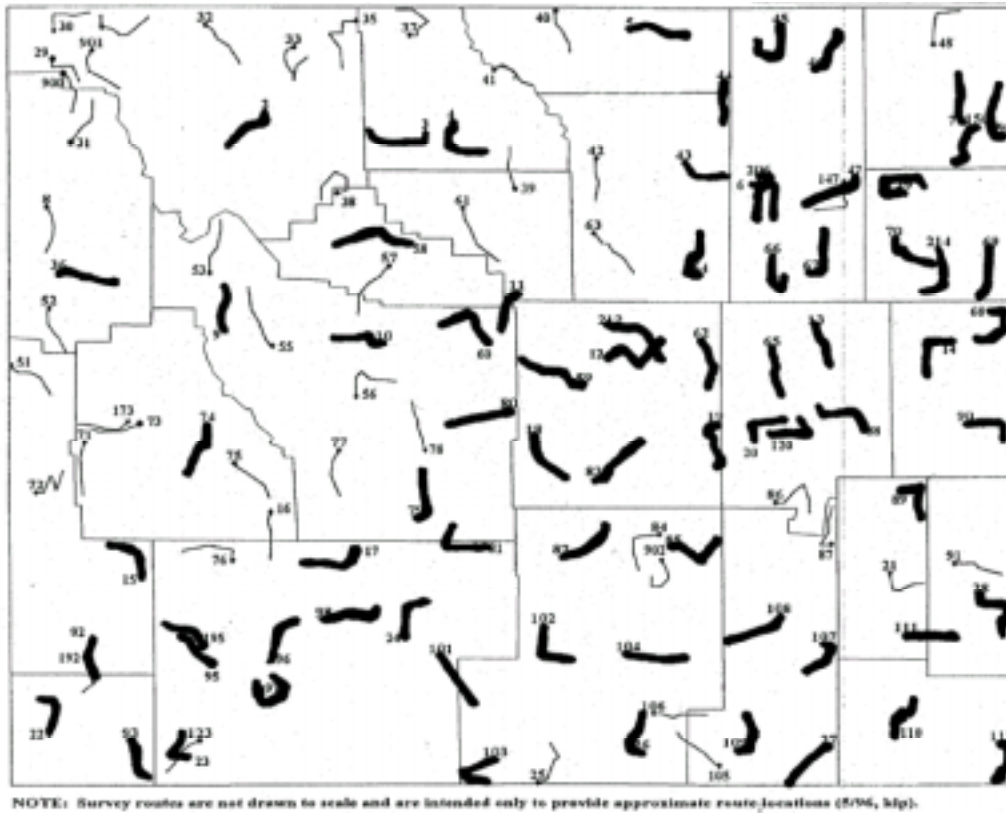


Figure 13. Bold lines indicate Breeding Bird Survey routes on which Ferruginous Hawks have been observed from 1968 through 2002.

### Habitat Objectives

1) Minimize loss of shortgrass prairie habitat by reducing urban and suburban sprawl, habitat fragmentation, and habitat conversion.

### Recommendations

- 1) Avoid converting existing tracts of shortgrass prairie habitat to cropland; this is considered a main factor in Ferruginous Hawk population declines.
- 2) Limit the amount of oil and gas development, mining, and habitat fragmentation in areas where Ferruginous Hawks occur.
- 3) Limit control of small mammals in areas where Ferruginous Hawks occur, especially ground squirrel, prairie dog, and rabbit populations.
- 4) Avoid disturbing nest sites from April 1<sup>st</sup> through July 31<sup>st</sup>. (This species is sensitive to human disturbance during nesting.)

5) Limit fire within Ferruginous Hawk nesting areas.

6) Protect nesting areas traditionally used by Ferruginous Hawks, as some individuals return to the same territories year after year.

### ***Peregrine Falcon***

Primary Habitat Type: Specialized (cliffs)

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Peregrine Falcon  (PEFA) <i>Falco peregrinus</i> Level I CA, M	~Variety of open habitats near nesting cliffs and mountains		~Nests on ledges of cliffs, usually from 50 to >200 feet high ~Prefers ledge with a wide view of the area ~Usually nests within 1 or 2 miles of water	~Elevation 4,500 to 9,000 feet	~Extirpated from much of its range as a result of habitat destruction and pesticide contamination ~Reestablished as a breeding bird through reintroductions and legal restrictions on pesticides ~Nest site fidelity ~Requires an abundance of small birds as prey ~Some are year-round residents in Wyoming; others winter in Mexico or Central America

Found scattered throughout the state, but breeds mostly in northwestern and northeastern Wyoming. Forages in a variety of open habitats from open woodlands and forests to shrub-steppe, grasslands, marshes, and riparian habitats. Requires cliffs within 1 or 2 miles (1.6 or 3 km) of water for nesting. Nest is a shallow depression scraped in gravel and debris on a cliff ledge, pothole, or small cave 50 to over 200 feet (15 to >60 m) high. Eggs (2 to 6, 53 mm) are white/pinkish-cream, occasionally marked with brown/red. Nest sites are often used perennially. Feeds primarily on birds ranging in size from warblers to mallards, which it usually stuns or kills in flight. Some

are year-round residents in Wyoming; others winter south to Mexico or Central America. Extirpated from much of its range as a result of habitat destruction and pesticide contamination, but is now recovering through reintroductions and legal restrictions on pesticides. Continues to be exposed to pesticides in countries where it or its prey winters. Other species that may benefit from habitat management for this species include the Golden Eagle, Prairie Falcon, Great Horned Owl, White-throated Swift, Common Raven, Rock Wren, and Canyon Wren.

### **Population Objectives**

- 1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Peregrine Falcon in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Maintain more than 30 nesting pairs of Peregrine Falcons in Wyoming, and fledge 50 juveniles annually in the state.

### **Habitat Objectives**

- 1) Maintain cliffs and open habitats for Peregrine Falcons to use for nesting and foraging.

### **Recommendations**

- 1) Avoid converting cliff sites to other landforms.
- 2) Use prescribed burning to create a mosaic of habitats and maintain abundant prey for Peregrine Falcons. Because peregrines require open areas for hunting, fires that create these open areas would probably be beneficial, provided burning led to an increase in prey.
- 3) Establish buffer zones of ½ mile (0.8 km) to minimize direct human conflicts around nesting sites during the peak breeding season (March 15 through August 15), especially if the cliff is a popular destination for hikers or rock climbers. Close or reroute some hiking trails, or temporarily close some roads, trails, or cliff faces during the breeding season.
- 4) Protect areas traditionally used by Peregrine Falcons, as their fidelity to nesting territories is high. All known and potential nesting cliffs should be considered for conservation action.

5) Consider constructing, excavating, or blasting artificial nest sites in areas where natural sites are limiting Peregrine Falcon reproduction but other features of the cliff and the surrounding landscape, particularly the prey base, are suitable.

### ***Greater Sage-Grouse***

Greater Sage-Grouse (*Centrocercus urophasianus*) would appear here based on priority, but this species will not be addressed in the Wyoming Bird Conservation Plan because issues, management strategies, and population goals are already addressed in the Greater Sage-Grouse Management Plan.

### ***Columbian Sharp-tailed Grouse***

Primary Habitat Type: Mountain-foothills Shrub

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Columbian Sharp-tailed Grouse  (STGR) <i>Tympanuchus phasianellus columbianus</i> Level I CA, M	~Mountain-foothills shrub communities of serviceberry, snowberry, chokecherry, hawthorn, and Gambel oak; sagebrush-grassland; and willow-riparian habitats	~Moderate vegetative cover, high plant diversity, and high structural diversity ~Interspersion of sparse vegetation for leks; taller, denser shrubs for nesting; high diversity of shrubs, forbs, and grasses for brood rearing; and deciduous trees and shrubs in riparian areas and draws for winter		~Minimum total habitat necessary to support a self-sustaining population may approach 12 square miles ~Spends most of life within a home range no larger than 11.5 square miles	~Established leks may be used for many years; males show a strong fidelity to lek sites ~Is a year-round resident in Wyoming

Found in scattered pockets in northwest and southcentral Wyoming. Inhabits mountain-foothills shrub communities of serviceberry, snowberry, chokecherry, and Gambel oak; sagebrush-grassland; and willow-riparian habitats. In Wyoming, prefers mountain-foothill shrub and sagebrush-snowberry habitats in the transitional zone between sagebrush-grass and forested habitats. Leks are the hub of breeding activity and are typically located in areas with little slope and low, sparse vegetation, such as

knolls, ridgetops, or benches that allow good visibility. Nests near the lek [within ½ mile (0.8 km)] in a healthy stand of bunchgrass with relatively tall, dense residual cover from the previous year. Brood-rearing areas contain a mosaic of dense shrubs and grasses with rich forb and insect foods, usually in mountain-foothills shrub or sagebrush-snowberry habitats. Nest is a scraped depression lined with grasses and leaves, with an overhead canopy of vegetation, either grasses or shrubs. Eggs (5 to 17, 43 mm) are light brown, dotted with reddish brown or lavender, occasionally unmarked. Feeds on the ground, eating leaves, buds, seeds, berries, grains, and insects. Young less than 10 weeks old feed primarily on insects such as grasshoppers, beetles, and ants. Is a year-round resident in Wyoming; during winter relies on riparian areas and other sites within 4 miles (6.4 km) of the breeding complex with deciduous trees and shrubs for feeding, roosting, and escape cover. Conversion of habitat to cropland and other human development, intensive livestock grazing, fire (too much in some areas, not enough in other areas), invasion of nonnative annual vegetation, and isolation are the principle threats. Other species that may benefit from habitat management for this species include the Swainson's Hawk, Ferruginous Hawk, Prairie Falcon, Greater Sage-Grouse, Long-billed Curlew, Short-eared Owl, Burrowing Owl, Gray Flycatcher, Loggerhead Shrike, Sage Thrasher, Virginia's Warbler, Lazuli Bunting, Green-tailed Towhee, Sage Sparrow, Black-throated Sparrow, Brewer's Sparrow, and Vesper Sparrow.

### **Population Objectives**

1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Columbian Sharp-tailed Grouse in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

### **Habitat Objectives**

1) Protect, maintain, and enhance winter, brood-rearing, and nesting habitats where Columbian Sharp-tailed Grouse occur. Identify and protect leks and the surrounding breeding complex (nesting and brood-rearing areas) within at least a 1.5-mile (2.5-km) radius of leks.

### **Recommendations**

1) Protect all lek sites from loss or degradation, as males show a strong fidelity to lek sites and established leks may be used for many years. Also protect historical but currently vacant lek sites to encourage future reestablishment. Translocated birds have been reported to establish leks at historic lek locations, sometimes years after the lek was abandoned.

2) Provide nesting cover with relatively dense residual herbaceous vegetation and good visual obstruction to a height of 6 to 12 inches (15 to 30 cm) within ½ mile (0.8 km) of leks.

3) Provide a mosaic of dense shrubs and grasses with rich forb and insect foods for brood rearing, in a complex with the lek and nesting areas [within 1.5 miles (2.5 km) of the lek].

4) Provide high quality winter cover and forage in riparian and deciduous shrub and tree habitat within 4 miles (6.4 km) of the breeding complex. Rehabilitate the native shrub community, particularly in riparian areas, to provide critical winter forage and cover. Avoid treatments that reduce the height, canopy cover, or density of key winter shrub species. Treatments designed to improve the quality of winter habitat should include less than 20% of the area, not exceed 2,000 acres (809 ha), and allow 7 to 10 years before treating other portions of the winter habitat.

5) Use prescribed burning judiciously to improve Columbian Sharp-tailed Grouse habitat, which has been degraded by too much fire in some areas, and not enough in other areas. At proper frequencies and scales, fire can help maintain vigorous early successional stages of grasses, forbs, and shrubs that provide cover and food for sharp-tails; maintain open habitat with good horizontal visibility for lek sites; stimulate new food supplies for sharp-tails; and prevent successional colonization by trees. However, severe fire may eliminate valuable cover essential for nesting, roosting, hiding, and feeding. Severe fires in autumn may eliminate the entire winter food and cover resource, making winter survival in that area nearly impossible. Frequent and intense fires can kill native vegetation and deplete or destroy native seed sources. Also, in some areas, fire can allow cheatgrass, an aggressive nonnative grass, to invade. Use small, patchy, cool burns to provide a mosaic of native shrubs, grasses, and forbs. Provide areas that contain cover in scattered openings rather than evenly distributed. Avoid burning during the nesting season. Where necessary to prevent invasion by exotic plants, reseed with native shrub, forb, and grass species following fire.

6) Avoid a reduction of vegetative species diversity and habitat quality due to heavy livestock grazing. The effects of livestock grazing of upland sites may not be detrimental if shrub and herbaceous cover does not decline. However, excessive grazing results in loss of residual vegetation necessary for nesting, may reduce shrubby cover needed for broods, and may damage critical winter shrub and riparian cover through trampling, browsing, and rubbing. Regulate grazing so that approximately 15% of an area remains unused during a season. In nesting habitat, control average annual utilization of key perennial bunchgrasses to achieve residual cover of at least 8 inches (20 cm). Limit the utilization of current annual growth of key winter shrub species to less than 35% use. Where necessary, fence off some woody stands to provide cover for Columbian Sharp-tailed Grouse.

7) Avoid applying pesticides to breeding habitats during the brood-rearing season (May 15 to July 15). Pesticides reduce the supply of insect food sources needed for chick survival and eliminate shrubs that are important food and cover resources. Apply chemicals only to areas necessary to reduce threats to cropland, and reduce pesticide use to increase plant and insect diversity on the margins of agricultural lands.

8) Prevent physical, mechanical, and audible disturbances within the breeding complex during the breeding season (March to June) that might impact courtship activities and breeding during the daily display period (within 3 hours of sunrise and sunset).

9) Protect and maintain cottonwoods, willows, and deciduous shrubs in riparian areas. Avoid vegetation manipulation or disturbance that results in the loss of height, canopy cover, or density of deciduous trees or shrubs within 330 feet (100 m) of streams, including seasonally dry and intermittent secondary drainages. Reduce or eliminate livestock use of riparian areas as necessary to minimize destruction of shrubs and trees.

10) Avoid reducing the height, canopy cover, or density of chokecherry, snowberry, sagebrush, serviceberry, or other shrub species important for nesting. Avoid manipulation or disturbance of vegetation, including pesticide application, burning, or mechanical destruction that results in long-term (>5 year) or permanent reduction of height, canopy cover, or density of mountain shrub habitats within occupied ranges if shrubs comprise less than 10% of the cover in the area. Limit treatments to rejuvenate or increase shrub communities to, at most, 25% of the cover type annually. Constrain treatments to narrow strips less than 100 feet (30 m) wide to minimize large open areas that broods will not use. Avoid manipulating vegetation within the breeding complex during the nesting period (May to June).

## Mountain Plover

Primary Habitat Types: Shortgrass Prairie and Shrub-steppe

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Mountain Plover (MOUP) <i>Charadrius montanus</i> Level I CA, M, R	~Shortgrass prairie ~Mid-grass grasslands ~Sagebrush-grasslands ~Blue grama and buffalo grass communities, often including fleabane, milkvetch, saltbush, fringed sage, big sagebrush, cacti, and/or other grasses	~Vegetation height of $\leq 4$ inches, average $< 2.4$ inches ~Low structure	~Slope $< 12\%$ , average $< 2\%$ slope	~Early succession ~At least 30% bare ground around nest ~At least 25 to 50 acres for foraging ~At least 70 acres for brood-rearing, although boundaries may overlap	~Heavy livestock grazing may be beneficial ~High degree of site fidelity ~Selectively inhabits prairie dog towns ~Sensitive to disturbance during nesting ~Double-clutches ~Winters in Mexico

Found in shortgrass prairie and shrub-steppe habitats across Wyoming. Inhabits arid shortgrass prairies dominated by blue grama and buffalo grass with scattered clumps of cacti and forbs; is also found in low and open vegetation, such as prairie dog towns and saltbush habitats of the shrub-steppe of central and western Wyoming. Is adapted to sparsely vegetated and bare ground areas associated with various disturbances (e.g. heavy grazing, fire, prairie dog colonies). Nests in a shallow depression on the ground, sometimes lined with grass, in flat terrain with very short grass and a high proportion of bare ground, frequently in prairie dog towns. Eggs (3, 38 mm) are dark olive or buff, marked with dark brown or black blotches. Gleans its food from the ground. Feeds primarily on insects such as beetles, grasshoppers, crickets, ants, and spiders. Obtains sufficient water from its food. Winters in southern Baja, California and northern Mexico. Populations have declined due to conversion of native shortgrass prairie to cropland, urbanization (especially on the wintering grounds), eradication of prairie dogs, oil and gas development, and plowing and planting on the nesting grounds (nests are destroyed by planting or tilling, or are abandoned when crops grow taller than a few inches). May be threatened by pesticides used to control grasshoppers. Narrow range of habitat requirements combined with high degree of site fidelity increases its vulnerability to impacts at traditional breeding sites. Other species that may benefit from habitat management for this species include the McCown's Longspur, Long-billed Curlew, Burrowing Owl, and Horned Lark.

## **Population Objectives**

- 1) Determine statewide population trend data by implementing “Monitoring Wyoming’s Birds: The Plan for Count-based Monitoring”.
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Mountain Plovers have been detected on 24 BBS routes in Wyoming, including 9 routes on which they were observed a minimum of 3 years.
  - a) Maintain Mountain Plovers on the 24 BBS routes on which they were observed (Figure 14).
  - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.
- 3) Increase monitoring in suitable habitat where monitoring is presently not being conducted and maintain monitoring in areas where it is currently in place.
- 4) Manage populations for an upward trend within the preferred habitat on a landscape scale by implementing recommendations in the grassland Best Management Practices and working with Bird Conservation Region partners.

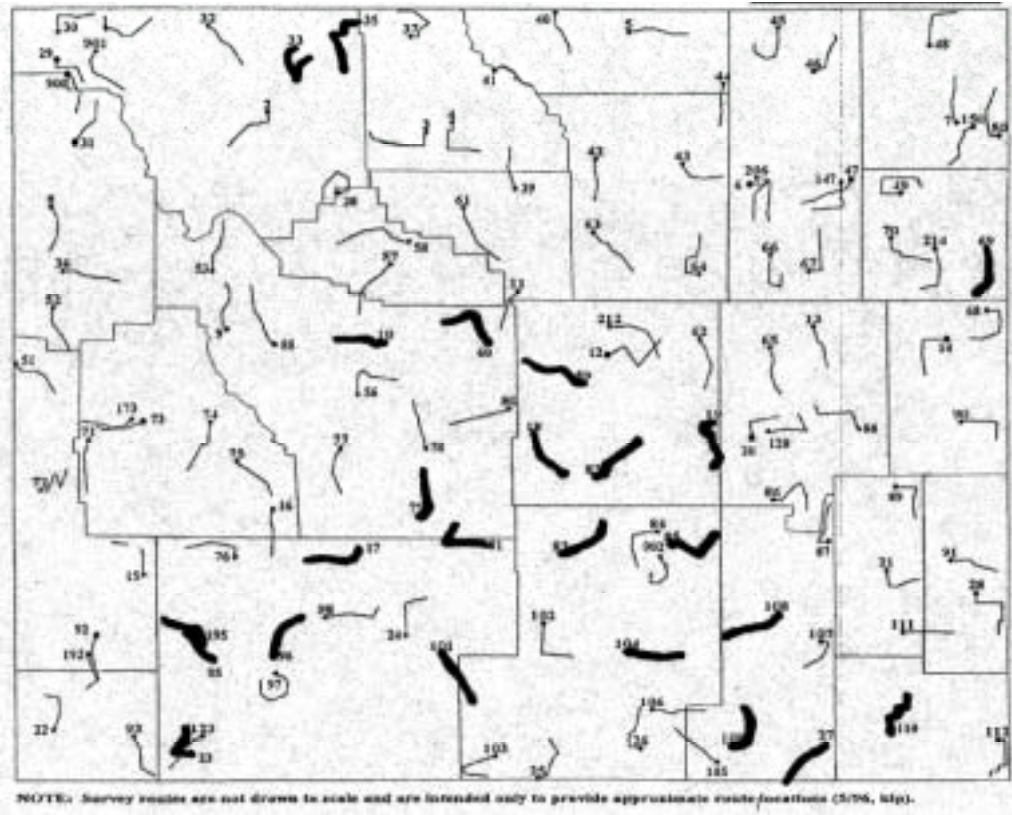


Figure 14. Bold lines indicate Breeding Bird Survey routes on which Mountain Plovers have been observed from 1968 through 2002.

## Habitat Objectives

- 1) Minimize loss of shortgrass prairie habitat by reducing urban and suburban sprawl, habitat fragmentation, and habitat conversion.
- 2) On a landscape scale, maintain portions of shortgrass prairie habitat in low structure, an early seral stage, and with some bare ground in a mosaic that is well distributed throughout this habitat type. Maintain blocks of habitat [at least 50 acres (20 ha) in size] consisting of bare ground and up to 70% short, sparse vegetation on nearly level terrain in areas where Mountain Plovers occur.
- 3) Manage prairie dog colonies to enhance Mountain Plover habitat.

## Recommendations

- 1) Monitor grass height, and use a combination of grazing and prescribed burning to eliminate woody vegetation that grows higher than the native grasses and to maintain habitat in an early successional stage.

- 2) Vary grazing pressure on a landscape level by interspersing areas of heavy, light, and non-grazing. Graze shortgrass or mixed grass habitats at moderate to heavy intensities in summer, late winter, or early spring in areas where Mountain Plovers occur. Employ high intensity grazing from mid-February through mid-May at specific nesting sites used by Mountain Plovers to maintain preferred vegetation structure at these sites.
- 3) Conduct prescribed burning in late summer or early fall to promote vegetation and habitat characteristics required by Mountain Plovers.
- 4) Reduce or eliminate prairie dog control in areas inhabited by Mountain Plovers. Prairie dog towns may provide islands of habitat in areas not otherwise suitable for nesting by Mountain Plovers. Maintenance of these towns is crucial to maintaining breeding populations of Mountain Plovers.
- 5) Avoid fragmenting existing tracts of shortgrass prairie habitat.
- 6) Avoid tilling existing shortgrass prairie habitat and seeding with exotic grasses.
- 7) Plant areas adjacent to existing Mountain Plover nesting areas with native grass mixtures (such as buffalo grass and blue grama).
- 8) Avoid spring tilling in fields that have lain fallow through April and May. Fields that are fallow, idle, or barren, or contain residual cover less than 4 inches (10 cm) tall through April and May may attract Mountain Plovers to begin nesting. Spring tilling practices to plant crops or control weeds may then destroy the nests and eggs.
- 9) Limit insect control, especially for grasshoppers, beetles, crickets, and ants, in areas where Mountain Plovers occur. Postpone all insecticide use until Mountain Plovers (and other insectivores) have completed their breeding cycle.
- 10) Avoid tree planting in shortgrass prairie habitat. This also fragments grassland habitats, and can increase parasitism by cowbirds and predation by crows, grackles, and jays.
- 11) Protect areas traditionally used by Mountain Plovers, as their fidelity to nesting territories is high.
- 12) Restrict oil, gas, and recreational activities near Mountain Plover habitat during the peak breeding season (April through July).
- 13) Fix leaking or overflowing livestock water tanks in areas managed for Mountain Plovers.

## ***Upland Sandpiper***

Primary Habitat Type: Shortgrass Prairie

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Upland Sandpiper  (UPSA) <i>Bartramia longicauda</i> Level I CA, M	~Shortgrass prairie ~Mid-grass grasslands ~Prairie junegrass, Kentucky bluegrass, green needlegrass, needle-and-thread grass, little bluestem, crested wheatgrass	~Tall enough to conceal nests (typically 6 to 12 inches or more), with up to 50% forbs, few shrubs, and little bare ground ~Moderate to dense litter cover ~Patchiness – shorter vegetation for foraging, taller vegetation for nesting, and moderate vegetation for brood rearing		~Fire can create desired habitat patchiness	~Nests are concealed by grass ~Uses rock piles, stumps, or fence posts for displaying ~Heavy livestock grazing can be detrimental, but low to moderate grazing can create habitat patchiness ~Rare cowbird host ~Winters in South America

Requires open grasslands, so breeds in the eastern half of Wyoming, but has been observed in open grassland habitats in north-central and northwest Wyoming. Prefers Great Plains grasslands, dryland grass pastures, hayfields, and alfalfa fields. Nests in a grass-lined depression on the ground, usually concealed by a grass arch. Eggs (4, 45 mm) are cream to pinkish-buff and marked with brown speckles and blotches on the large end of the egg. Is a rare cowbird host. Gleans insects and seeds from the ground, and prefers to feed where grasses are low and open enough to provide visibility, and where grasshoppers and crickets are most abundant. Also eats weevils, ants, berries, waste grain, and seeds of grasses and weeds. Winters south to central South America. Population declines are due to loss of habitat to urbanization and conversion of grasslands to woodlands and cultivated croplands. Other species that may benefit from habitat management for this species include the Sharp-tailed Grouse, Dickcissel, Chestnut-collared Longspur, Grasshopper Sparrow, Bobolink, and Western Meadowlark.

### **Population Objectives**

1) Determine statewide population trend data by implementing “Monitoring

## Wyoming's Birds: The Plan for Count-based Monitoring".

2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Upland Sandpipers have been detected on 31 BBS routes in Wyoming, including 17 routes on which they were observed a minimum of 3 years.

- a) Maintain Upland Sandpipers on the 31 BBS routes on which they were observed (Figure 15).
- b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

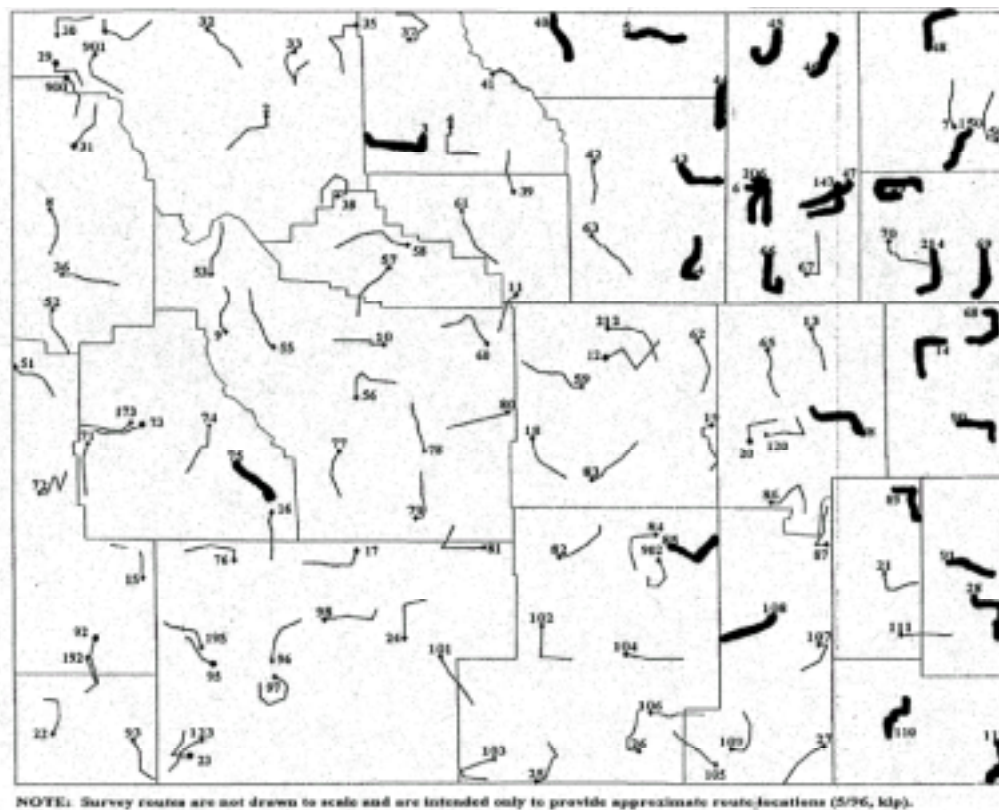


Figure 15. Bold lines indicate Breeding Bird Survey routes on which Upland Sandpipers have been observed from 1968 through 2002.

### Habitat Objectives

1) Maintain large tracts of contiguous grassland habitat and avoid fragmenting existing grassland tracts so area-sensitive species, like the Upland Sandpiper, can nest successfully. To benefit area-sensitive birds, tracts should be no smaller than 125 acres (50 ha), and preferably 250 acres (101 ha) or more, and should be located within 1 mile (1.6 km) of each other.

2) Maintain a mosaic of short grass for feeding and courtship, interspersed with taller grasses and forbs for nest concealment and brood-rearing cover, and rock piles, fence posts, or stumps for display perches.

## **Recommendations**

1) High intensity livestock grazing can be detrimental to this species, but low to moderate grazing can create desired patchiness. Across a landscape level, use grazing practices that allow large acreages of grasslands to go to a climax successional stage for Upland Sandpipers and associated species. Avoid season-long grazing and grazing in known or suspected Upland Sandpiper nesting sites so cover needed for nest concealment is not removed. Use a rotational grazing system with two or more grazing units to increase grass height and density within and among units, and delay grazing until mid to late June to retain existing nests.

2) In hayfields where Upland Sandpipers nest, delay spring mowing as long as possible (preferably until nesting ends in late July), avoid nighttime mowing, and space mowings as widely as possible in time to allow the greatest probability of successful nesting. If mowing must be done prior to mid-July, use a flush bar to allow birds time to escape, and leave small areas of uncut hay as refuges for young birds.

3) Avoid or minimize insecticide use in grassland habitats to maintain a food source for Upland Sandpipers (and other insectivores). Postpone all insecticide use until Upland Sandpipers and other insectivores have completed their breeding cycle.

4) In areas known to support nesting Upland Sandpipers, conduct prescribed burns in the fall to avoid loss of nesting cover. To retain adequate residual cover for nesting the following spring, burns should be relatively small so a portion of the area contains nesting cover at all times. Annually burn 20 to 30% of grassland tracts less than 200 acres (80 ha) in size. Small fragments should have less than 50% of their area burned at any one time and, if next to other fragments, should be burned in a rotating fashion so unburned fragments are adjacent to burned fragments.

5) Use no-till or minimum-till practices, rather than annual tillage practices, so that nesting habitat is undisturbed during the breeding season. Delay first tillage until late June or early July to avoid destroying nests.

6) Protect taller grasses that grow around moist sites. These may be the only areas where Upland Sandpipers and associated species can successfully nest on the shortgrass prairie.

## ***Long-billed Curlew***

Primary Habitat Types: Shortgrass Prairie and Meadows

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Long-billed Curlew (LBCU) <i>Numenius americanus</i> Level I CA, M	~Moist meadow grasslands ~Shortgrass prairie ~Mid-grass grasslands ~Sagebrush grasslands ~Eastern WY = blue grama, fringed sage, hairy golden aster, little bluestem, prairie sandreed, Idaho fescue	~Short vegetation for nesting ( $\leq 4$ to 12 inches) ~Bare ground component needed ~Low structure with some taller patchiness to provide necessary shade	~Flat to moderate topography	~Late succession prairie and grassland ~5% in tall vegetation state for chick survival ~5 acres per breeding pair ~Nests are $\geq 750$ feet apart ~Requires 35 to 120 acres of suitable breeding and nesting habitat depending on the topographic and vegetative diversity	~Abundant invertebrate prey needed ~Sensitive to habitat fragmentation ~Pre-nesting grazing may be beneficial ~Winters in coastal areas to Central America

Scattered across Wyoming, although most sightings occur in the western portion of the state. Inhabits a variety of grassland types ranging from moist meadow grasslands to agricultural areas to dry prairie uplands, usually near water. Prefers a complex of shortgrass prairies, agricultural fields, wet and dry meadows and prairies, and grazed mixed-grass and scrub communities. Commonly perches on shrubs, dirt mounds, cow pies, rocks, stumps, fence posts, or on other elevated sites during the breeding season. Nests on the ground in a shallow depression lined with grasses or weeds; often near water [within 100 to 450 yards (91 to 411 m)], usually in a flat area among short grasses. Eggs (4, 65 mm) are green, olive, or buff and marked with dark brown blotches. Feeds mainly on insects and aquatic invertebrates. Is a ground foraging omnivore during the breeding season but becomes a shoreline gleaner insectivore during the nonbreeding season. Winters along beaches and mudflats south to Central America. Adequate shortgrass prairie nesting habitat may be the most important factor in sustaining populations. Adversely affected by uncontrolled hunting in the late 1800s and early 1900s, widespread conversion of native shortgrass prairie to agricultural fields up to the 1930s, and organochlorine pesticides. Current agricultural practices, livestock grazing, urban expansion, and other habitat disturbances have prevented recovery in many areas. Other species that may benefit from habitat management for this species include the Mountain Plover, Short-eared Owl, and Horned Lark.

## Population Objectives

- 1) Determine statewide population trend data by implementing “Monitoring Wyoming’s Birds: The Plan for Count-based Monitoring”.
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Long-billed Curlews have been detected on 26 BBS routes in Wyoming, including 12 routes on which they were observed a minimum of 3 years.
  - a) Maintain Long-billed Curlews on the 26 BBS routes on which they were observed (Figure 16).
  - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.
- 3) Continue ongoing monitoring on specific survey routes in northwestern Wyoming, and implement monitoring in other breeding sites within the state identified by “Monitoring Wyoming’s Birds: The Plan for Count-based Monitoring”.

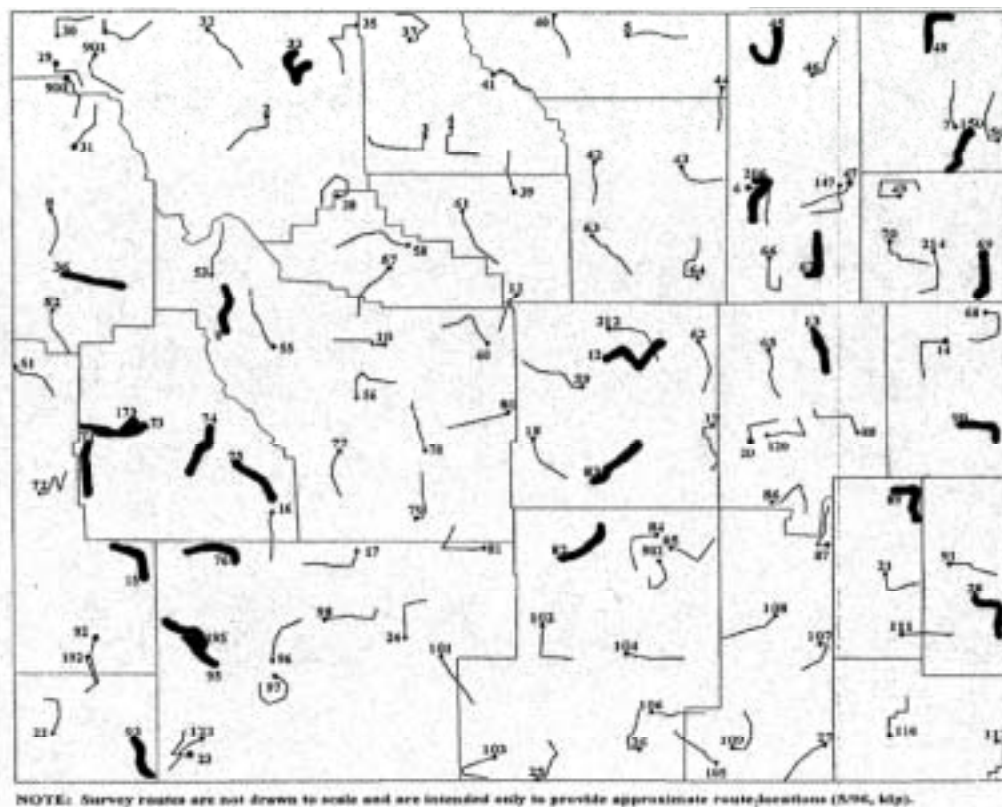


Figure 16. Bold lines indicate Breeding Bird Survey routes on which Long-billed Curlews have been observed from 1968 through 2002.

## **Habitat Objectives**

- 1) Maintain large blocks of suitable habitat in areas managed for Long-billed Curlews. (This species is sensitive to habitat fragmentation.)
- 2) Maintain a mosaic of short vegetation [ $\leq 4$  to 12 inches (10 to 30 cm)], bare ground, and low structure for nesting, with 5% of the vegetation in a taller state for shade and chick survival.
- 3) Ensure that 5 acres (2 ha) per breeding pair and abundant invertebrate prey are available for successful nesting.

## **Recommendations**

- 1) Avoid tilling existing shortgrass prairie habitat and seeding with exotic grasses, or converting native prairie to cropland or urban development. Land conversion is considered a main factor in population declines.
- 2) Create and maintain vegetative diversity within grasslands, meadows, and prairies by conducting rotational burning, mowing, and grazing when and where appropriate.
- 3) Across a landscape level, use livestock grazing as a tool to maintain areas of short grass and open ground and areas where large acreages of grasslands are allowed to go to a climax stage for Long-billed Curlews and other species that require vegetation in both early and late successional stages. Pre-nesting grazing, rotational grazing, and rest rotational grazing may be beneficial to create these conditions.
- 4) Conduct prescribed burning in late summer or early fall to promote vegetation and habitat characteristics preferred by Long-billed Curlews (i.e. reduced shrub cover and increased habitat openness). Conduct prescribed burning on a three-to five-year rotational basis.
- 5) Use rotational mowing to maintain vegetation diversity and a variety of stages of growth in grassland communities. Mow grasslands rotationally in strips [20 to 50 feet (6 to 15 m) wide depending on the field's size] once or twice a year in early spring before nesting has begun, and/or in the fall after nesting activities have ended.
- 6) Protect areas traditionally used by Long-billed Curlews, as many individuals return to the same sites year after year.
- 7) Restrict oil, gas, and recreational activities near Long-billed Curlew habitat during the peak breeding season (April through July).

8) Reduce pesticide use on grasslands, especially near water, to maintain both terrestrial and aquatic invertebrates and berries as a food source for Long-billed Curlews. Avoid widespread pesticide applications aimed at controlling grasshoppers. Reduce herbicide use to maintain nesting, loafing, and brood-rearing cover for Long-billed Curlews.

### ***Wilson's Phalarope***

Primary Habitat Type: Wetlands

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Wilson's Phalarope  (WIPH) <i>Phalaropus tricolor</i> Level I CA, M	~Marsh grasses and sedges or rushes	~Low grasses or sedges ~Sparse to dense vegetation ~Nests in wet meadows, grassy marshes, and along edges of shallow lakes and ponds ~Also nests in upland habitat, usually within 325 feet of water	~Shallow water that ranges from fresh to highly saline		~Nests semi-colonially ~Recent range shifts likely influenced by loss of wetlands and drought ~Winters mostly in western South America

Found throughout most of Wyoming in wet meadows, grassy marshes, and along the edges of shallow lakes and ponds. Forages in water ranging from fresh to highly saline. Nests in sparse to dense vegetation in both marshes and uplands, although nests in upland habitat are usually within 325 feet (100 m) of water. Vegetation around the nest usually consists of marsh grasses and sedges or rushes. Nests semi-colonially in a grass-lined scrape on the ground. Eggs (3 to 4, 33 mm) are buff, marked with brown and black. Forages on muddy shores and in shallow water. Dips, spears, or probes for prey at or near the water surface. Stirs up food by whirling its body around in water. Primarily consumes aquatic invertebrates; also eats seeds of aquatic plants. Winters mostly in western South America. Declines, especially in the early 1900s, were due to loss and degradation of wetlands. Recent range shifts were likely influenced by loss of wetlands and drought, but suggest that the species is capable of discovering new habitats. Other species that may benefit from habitat management for this species include the American Bittern, American Avocet, and Willet.

## Population Objectives

- 1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Wilson's Phalaropes have been detected on 58 BBS routes in Wyoming, including 26 routes on which they were observed a minimum of 3 years.
  - a) Maintain Wilson's Phalaropes on the 58 BBS routes on which they were observed (Figure 17).
  - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

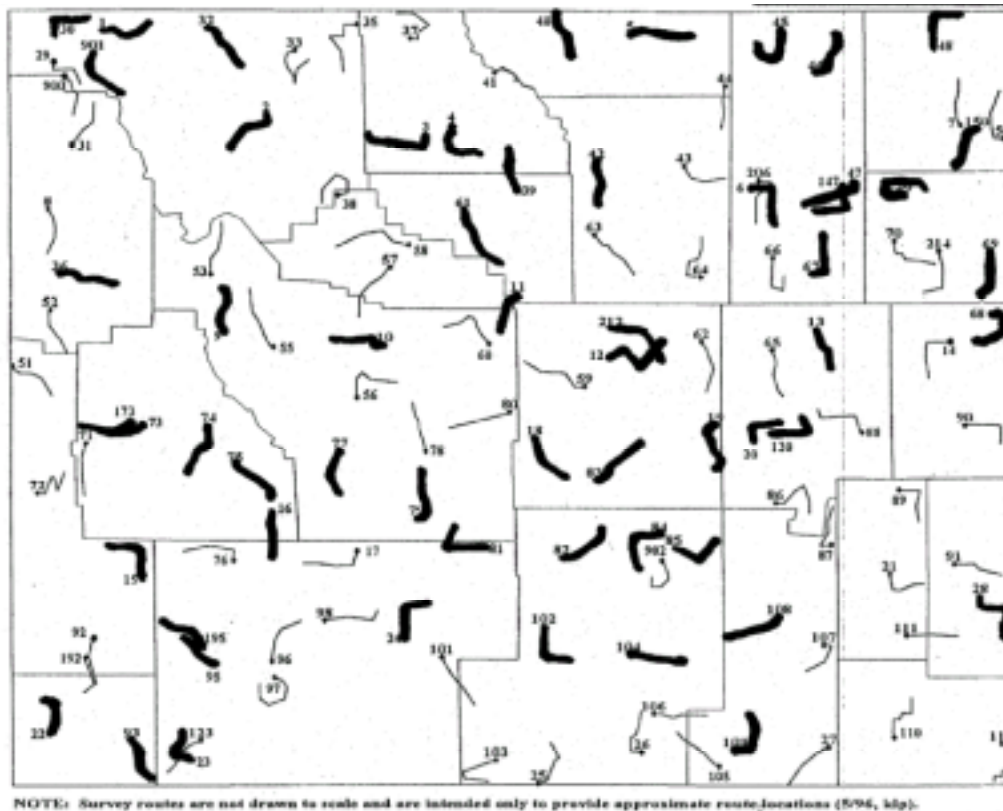


Figure 17. Bold lines indicate Breeding Bird Survey routes on which Wilson's Phalaropes have been observed from 1968 through 2002.

## Habitat Objectives

- 1) Maintain wetland complexes and a variety of wet-meadow and marsh stages and conditions where Wilson's Phalaropes occur.

2) Maintain water quality to sustain substantial populations of invertebrates as a food source for Wilson's Phalaropes.

### **Recommendations**

1) Protect wetland complexes with both seasonal and semi-permanent wetlands to provide suitable habitat during both wet and dry years.

2) Provide wet meadow areas near deeper wetlands during the breeding season to make it easier for adults to move their young from nests to wetlands for foraging.

3) Prevent the diversion of water from saline lakes and wetlands in staging areas.

4) Refrain from draining, mowing, burning, or heavily grazing Wilson Phalarope nesting habitat during the breeding season, from early May to late July.

5) Use prescribed burning during the spring or fall to improve nesting habitat.

6) Avoid or minimize insecticide use in or near wetlands to maintain a food source for Wilson's Phalaropes (and other insectivores). Postpone all insecticide use until Wilson's Phalaropes and other insectivores have completed their breeding cycle.

7) Maintain vegetation buffer zones to block siltation, pesticide, and fertilizer runoff into wetlands. This is particularly important where Wilson's Phalarope colonies are adjacent to agricultural land, and vulnerable to contamination from agricultural runoff.

## ***Franklin's Gull***

Primary Habitat Type: Wetlands

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Franklin's Gull  (FRGU) <i>Larus pipixcan</i> Level I CA, M	~Bulrushes, cattails, reeds, or other emergent vegetation	~Freshwater marshes and sloughs ~Nests in sparse emergent vegetation ( $\leq 1$ plant $< 3$ feet tall per square foot), or at edges of dense clumps ~Scavenges in most open habitat below 8,000 feet	~Usually nests near patches of open water of various sizes	~Prefers wetlands near cultivated lands ~Forages in marshes and fields up to 30 miles from the nesting site	~Nests in large colonies ~Entire nesting colonies may shift sites from year to year depending on water levels ~Sensitive to human disturbance early in the breeding cycle; will readily desert nest ~Competes with American Coots for nesting sites ~Vulnerable to agricultural pesticides ~Winters on Pacific coast from Central America to Chile

Found across most of the state during migration, but currently breeds only in northwestern Wyoming. Inhabits marshes and sloughs with sparse emergent vegetation, such as cattails, bulrushes, or reeds, but scavenges in most open habitats below 8,000 feet (2,500 m). Nests in colonies in marshes no denser than one plant less than 3 feet tall per square foot ( $\leq 10$  plants  $< 1$  m tall per square meter), and usually near patches of open water. Entire colonies may shift sites from year to year, influenced by drought and fluctuating water levels. Builds a well-maintained, floating, platform nest of masses of coarse marsh vegetation, lined with finer materials, and anchored to live vegetation. Eggs (2 to 4, 52 mm) are buff or greenish-buff and marked sparsely with brown. Eats aerial insects, earthworms, and some fish, which it gathers by ground-gleaning, hawking, and hovering and pouncing. Often forages in marshes and fields up to 30 miles (50 km) from the nesting site. Will also follow agricultural machinery to forage on flushed insects and worms. Winters on the Pacific coast of South America south to southern Chile. May be vulnerable to agricultural pesticides. Is susceptible to

human disturbance early in its breeding cycle, and will desert colonies readily. Often competes with American Coots for nesting sites. Other species that may benefit from habitat management for this species include the Western Grebe, Clark's Grebe, Forster's Tern, and Black Tern.

### **Population Objectives**

- 1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Franklin's Gull in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Locate and monitor nesting colonies of Franklin's Gulls.

### **Habitat Objectives**

- 1) Maintain complexes of marshes with sparse emergent vegetation interspersed with patches of open water.
- 2) Maintain water quality to sustain substantial populations of invertebrates as a food source for breeding and migrating Franklin's Gulls.

### **Recommendations**

- 1) Protect wetland complexes with seasonal, semi-permanent, and permanent wetlands to provide suitable habitat during both wet and dry years.
- 2) Implement wetland management techniques that provide marshes with open vegetative cover over water.
- 3) Protect any colony sites currently in use, regardless of the size of the site or the number of gulls present.
- 4) Protect all remaining suitable wetland habitat in the state. The success of Franklin's Gulls depends, in part, on their flexibility in choosing nesting areas. This makes protection of all suitable wetlands important because gulls may use a particular marsh only occasionally, but when they do, it may be their only chance of nesting success.
- 5) Maintain stable water levels throughout the nesting season in marshes where Franklin's Gulls are breeding. Rising water levels can flood nests, and low water levels may increase the likelihood of nest predation by raccoons and other mammals.
- 6) Maintain vegetation buffer zones to block siltation, pesticide, and fertilizer runoff

into wetlands. This is particularly important where Franklin's Gull colonies are adjacent to agricultural land, and vulnerable to contamination from agricultural runoff.

7) Avoid or minimize insecticide use in or near wetlands to maintain a food source for Franklin's Gulls (and other insectivores). Postpone all insecticide use until Franklin's Gulls and other insectivores have completed their breeding cycle.

8) Avoid disturbing nest sites from April through August, as colonies are very sensitive to human disturbance. Nest abandonment is less likely with young than eggs, but may still occur with repeated disturbances. Restrict entry during the breeding season at colonies with excessive human disturbance. In some cases, posting signs to discourage visitors may be effective. However, signs may also draw attention to colony sites and may be ineffective when enforcement is not possible. Efforts to educate the public may be the most reasonable method of reducing disturbance.

### ***Forster's Tern***

Primary Habitat Type: Wetlands

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Forster's Tern  (FOTE) <i>Sterna forsteri</i> Level I CA, M	~Reedy marshes, ponds, and lakes	~Freshwater marshes, marshy borders of ponds and lakes ~Vegetated nesting sites that are close to open water areas		~Requires extensive marshy areas, large wetland complexes ~Often associated with wetlands affected by agriculture, but impact on terns is unknown	~Very susceptible to human disturbance on the breeding grounds ~Nests in small, loose colonies ~Low fidelity to nest site ~Nests occasionally parasitized by American Coots ~Western population winters on Pacific coast from central California to Guatemala

Scattered across most of Wyoming in marshes and aquatic areas. Found in greatest numbers during migration, and in more isolated areas during breeding. Nests in small, loose colonies in freshwater marshes and marshy borders of ponds and lakes. Requires large marsh complexes with vegetated nest sites near patches of open water.

Builds a platform nest, deeply hollowed, well rounded, and compactly woven; lined with bits of reeds and grass. Usually nests on mats of floating dead vegetation, large muskrat houses near the edges of open pools of water, or in a shallow depression in sand or mud close to water. Sometimes uses old or abandoned nests of Western or Pied-billed Grebes. Nesting sites that are close to open water areas for foraging are especially favored. Eggs (2 to 5, 43 mm) are buff, marked with dark brown, and often wreathed. Nests are occasionally parasitized by American Coots. High dives or aerial forages to capture small fish, and some insects and aquatic invertebrates. Feeds over or near the marshes in which it nests. Western population winters on the Pacific coast from central California to Guatemala. Is threatened by loss of nests to flooding, and is very susceptible to human disturbance on the breeding grounds. Is often associated with wetlands affected by agriculture, but the impact on terns is unknown. Will use artificial nest platforms. Other species that may benefit from habitat management for this species include the American Bittern, Western Grebe, Clark's Grebe, Franklin's Gull, Black Tern, and Marsh Wren.

### **Population Objectives**

- 1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Forster's Tern in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Maintain existing Forster's Tern breeding colonies throughout Wyoming.

### **Habitat Objectives**

- 1) Maintain complexes of marshes with stands of emergent vegetation greater than 20 feet (6 m) wide and interspersed with patches of open water.
- 2) Maintain water quality to sustain substantial populations of small fish and invertebrates as a food source for breeding and migrating Forster's Terns.

### **Recommendations**

- 1) Protect wetland complexes with seasonal, semi-permanent, and permanent wetlands to provide suitable habitat during both wet and dry years.
- 2) Implement wetland management techniques that provide marshes with stands of emergent vegetation greater than 20 feet (6 m) wide and interspersed with patches of open water.
- 3) Avoid disturbing nest sites during the breeding season, as colonies are sensitive to

human disturbance. Restrict entry during the breeding season at colonies with excessive human disturbance. In some cases, posting signs to discourage visitors may be effective. However, signs may also draw attention to colony sites and may be ineffective when enforcement is not possible. Efforts to educate the public may be the most reasonable method of reducing disturbance.

4) Maintain stable water levels throughout the nesting season in marshes where Forster's Terns are breeding. Rising water levels can flood nests, and low water levels may increase the likelihood of nest predation by raccoons and other mammals.

5) Protect any colony sites currently in use, regardless of the size of the site or the number of terns present.

6) Maintain vegetation buffer zones to block siltation, pesticide, and fertilizer runoff into wetlands. This is particularly important where Forster's Tern colonies are adjacent to agricultural land, and vulnerable to contamination from agricultural runoff.

7) Consider installing and maintaining artificial nest platforms where fluctuating water levels or the lack of suitable nest sites is limiting Forster's Tern reproduction. Artificial nest platforms may provide a safer, more stable substrate than naturally floating objects, may be useful in luring terns to nest in more protected locations, and may provide suitable nest substrates in wetlands where natural substrates are in short supply. However, in some cases platforms may simply lure terns to nest in unproductive sites. Floating platforms should be about 2x2 feet (0.6x0.6 m) and may be constructed of bundles of reeds or cattails on a floating base of Styrofoam or wood. Platforms may be placed quite close together, even touching, and should be anchored away from shore to create an artificial island.

## ***Black Tern***

Primary Habitat Type: Wetlands

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Black Tern (BLTE) <i>Chlidonias niger</i> Level I CA, M	~Nests in a wide range of emergent vegetation, most commonly cattails or bulrushes	~Biologically rich freshwater marshes ~Nesting sites are usually in areas with 25 to 75% of water surface covered with emergent vegetation (hemi-marsh)	~Prefers shallow marshes (<3 feet deep) ~Prefers interspersed patches of open water; nests are usually within 1.5 to 6 feet of open water	~Requires extensive stands of emergent vegetation and large areas of shallow open water ~Prefers marshes or marsh complexes of 50+ acres ~Most likely to use wetlands whose surrounding grasslands are <50% tilled for agriculture	~Is considered an area-sensitive species ~Nests semi-colonially ~Often returns to breed in natal colony ~Low fidelity to nest site ~Nest success highly variable ~Tolerant of nearby human activity as long as colony is not entered ~Will use artificial nest platforms ~Winters along both coasts from Panama to Peru

Scattered across most of Wyoming in biologically rich marshes and aquatic areas. Prefers marshes or marsh complexes greater than 50 acres (20 ha). Nests in small, loose colonies, and occasionally singly. Generally selects nest sites in areas of still water, usually with 25 to 75% of the surface covered with emergent vegetation, usually cattails or bulrushes, and well-interspersed with open water. Usually nests in shallow water, in moderately dense emergent vegetation, but within 1.5 to 6 feet (0.5 to 2 m) of open water. Builds a flimsy nest on a floating substrate of matted dead marsh vegetation, anchored to surrounding vegetation. Also nests on floating pieces of wood, in a slight hollow atop a muskrat house, or in abandoned nests of grebes, Forster's Terns, or American Coots. Arranges material into a small pile with a shallow cup, which may be saturated with water. Some nests are elaborate, but most are only a loose, floating mat of damp vegetation raising eggs just above the water. Eggs (2 to 4, 33 mm) are dark olive or buff, marked with dark brown, and usually wreathed. Feeds mainly on insects while on the nesting grounds; also eats aquatic invertebrates and small fish. Often forages in flocks, catching insects in the air or picking them from the surface of the water or vegetation. Also feeds over meadows and agricultural lands. Winters along

both coasts from Panama south to Peru. Reproductive success is highly variable. Flimsy nests are easily destroyed by wind or changing water levels. May shift nesting sites from year to year, influenced by fluctuating water levels, vegetation density, and availability of nest substrates as a result of droughts, floods, winter storms, and muskrat activity. Most of the historical breeding areas in Wyoming are not reliable breeding sites during years of drought or high water conditions. The main threats to the species in Wyoming appear to be loss of suitable breeding habitat through human disturbance and climatic extremes, although introduced species and contaminants may be contributing factors. Will use artificial nesting platforms. Other species that may benefit from habitat management for this species include the American Bittern, Western Grebe, Clark's Grebe, Franklin's Gull, Forster's Tern, and Marsh Wren.

### **Population Objectives**

- 1) Breeding Bird Survey (BBS) data from 1968 through 2002 are inadequate to determine population trends for the Black Tern in Wyoming. Determine population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Maintain existing Black Tern breeding colonies throughout Wyoming.

### **Habitat Objectives**

- 1) Maintain extensive complexes of marshes with stands of emergent vegetation greater than 20 feet (6 m) wide and interspersed with patches of shallow open water.
- 2) Maintain water quality to sustain substantial populations of insects as a food source for Black Terns.

### **Recommendations**

- 1) Implement wetland management techniques that provide marshes with approximately 50:50 emergent vegetation cover to open water ratio, with a good interspersed of vegetation and water (hemi-marsh). Management of wetland complexes should be aimed at maintaining at least one large part of the complex in the hemi-marsh stage for as long as possible.
- 2) Provide marshes or marsh complexes greater than 50 acres (20 ha).
- 3) Maintain stable water levels throughout the nesting season in marshes where Black Terns are breeding. Rising water levels can flood nests, and low water levels may increase the likelihood of nest predation by raccoons and other mammals.
- 4) Protect any colony sites currently in use, regardless of the size of the site or the

number of terns present. Also protect historical sites that still have at least 12 acres (5 ha) of suitable habitat.

5) Protect all remaining suitable wetland habitat in the state. The success of Black Terns depends, in part, on their flexibility in choosing nesting areas. This makes protection of all suitable wetlands important, because terns may use a particular marsh only occasionally, but when they do, it may be their only chance of nesting success.

6) Maintain vegetation buffer zones to block siltation, pesticide, and fertilizer runoff into wetlands. This is particularly important where Black Tern colonies are adjacent to agricultural land, and vulnerable to contamination from agricultural runoff.

7) Avoid or minimize insecticide use in or near wetlands to maintain a food source for Black Terns (and other insectivores). Postpone all insecticide use until Black Terns and other insectivores have completed their breeding cycle.

8) Avoid disturbing nest sites during the breeding season, as colonies are sensitive to human disturbances and nests are easily flooded by boat wakes. Restrict entry during the breeding season at colonies with excessive human disturbances close to nest sites. In some cases, establishing no-wake zones or posting signs to discourage visitors may be effective. However, signs may also draw attention to colony sites and may be ineffective when enforcement is not possible. Efforts to educate the public may be the most reasonable method of reducing disturbance.

9) Consider installing and maintaining artificial nest platforms where fluctuating water levels or the lack of suitable nest sites is limiting Black Tern reproduction. Artificial nest platforms may provide a safer, more stable substrate than naturally floating objects, may be useful in luring terns to nest in more protected locations, and may provide suitable nest substrates in wetlands where natural substrates are in short supply. However, in some cases platforms may simply lure terns to nest in unproductive sites. Attraction is increased when decayed vegetation is piled on the nest platform.

## ***Burrowing Owl***

Primary Habitat Type: Shortgrass Prairie

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Burrowing Owl (BUOW) <i>Athene cunicularia</i> Level I CA, M	~Shortgrass prairie ~Mid-grass grasslands ~Basin-prairie shrublands ~Buffalo grass, blue grama, Sandberg bluegrass, needle-and-thread grass	~Low structure		~Early succession ~Fragmented habitat is detrimental and may cause competition ~Limited ability to disperse	~Mainly associated with prairie dog towns ~Livestock grazing can be beneficial ~Strong nest site (burrow) fidelity ~Eliminating burrowing mammals is problematic ~Winters in Mexico and Central America

Found across Wyoming in open habitats with burrowing mammals. Prefers open prairie, grassland, desert, and shrub-steppe habitats, and may also inhabit agricultural areas. Depends largely on mammals that dig burrows (especially prairie dogs and ground squirrels) in open areas with short vegetation for nesting, roosting, and for escape. Nest is located underground at the end of a burrow 4 to 12 feet (1.2 to 3.6 m) long, and is usually lined with plants or dried manure, probably either to disguise its scent or to help absorb water. Eggs (7 to 9, 31 mm) are white and nest-stained. Commonly perches on burrow mounds, fence posts, and shrubs. Hunts by ground foraging, hovering, flying from a perch, or flycatching. Primarily eats insects, but also takes small mammals and some birds and reptiles. Winters south to northern Central America. Population declines are due to loss of habitat to urbanization and conversion of native grasslands to croplands or to taller, nonnative grasslands, and removal of prairie dogs and ground squirrels. Other species that may benefit from habitat management for this species include the Swainson's Hawk, Red-tailed Hawk, Ferruginous Hawk, Rough-legged Hawk, Golden Eagle, Mountain Plover, and Horned Lark.

### **Population Objectives**

1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Burrowing Owls have been detected on 22 BBS routes in Wyoming, including 9 routes on which they were observed a minimum of 3 years.

- a) Maintain Burrowing Owls on the 22 BBS routes on which they were observed (Figure 18).
- b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

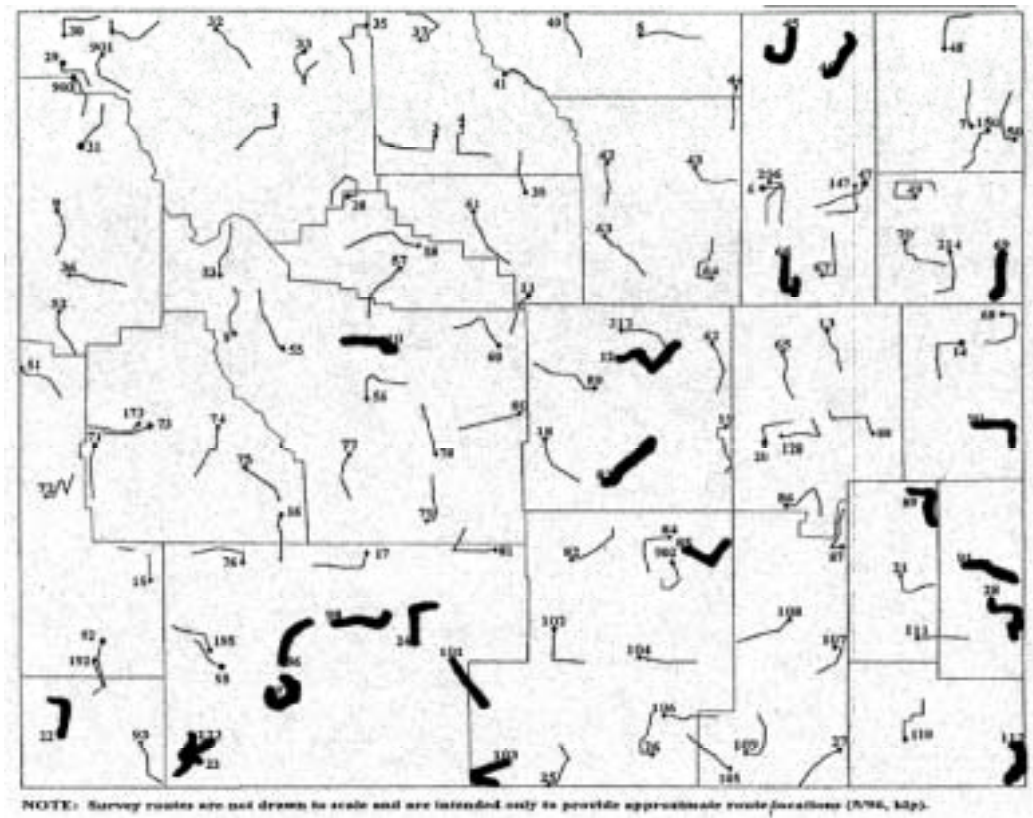


Figure 18. Bold lines indicate Breeding Bird Survey routes on which Burrowing Owls have been observed from 1968 through 2002.

### Habitat Objectives

1) Maintain prairie dog colonies where Burrowing Owls are present via conservation easements and voluntary agreements with landowners, and habitat management plans with land managers.

2) Maintain habitat conditions within  $\frac{1}{4}$  to  $\frac{1}{2}$  mile (0.4 to 0.8 km) of known Burrowing Owl nest sites in an undisturbed manner.

- 3) Protect all known nest burrows, as the same burrow will often be reused in subsequent years.
- 4) Retain inactive prairie dog burrows to provide roosting sites and future nesting sites for Burrowing Owls.
- 5) Maintain a buffer zone of  $\frac{1}{4}$  to  $\frac{1}{2}$  mile (0.4 to 0.8 km) around Burrowing Owl nest burrows. Limit insecticide use, rodent control, and human disturbances in these buffer zones.

## **Recommendations**

- 1) Across a landscape level, use livestock grazing and prescribed burning as management tools to maintain areas of short grass and open ground for Burrowing Owls and associated species.
- 2) Do not eliminate burrowing mammals, especially prairie dogs and ground squirrels, within preferred Burrowing Owl habitat, especially within  $\frac{1}{4}$  to  $\frac{1}{2}$  mile (0.4 to 0.8 km) of known nest sites. Burrowing Owls require prairie dog or ground squirrel burrows for shelter, nesting, and raising their young. Once prairie dogs or ground squirrels are removed from a colony, burrows deteriorate rapidly and dense vegetation encroaches the site. Burrowing Owls cannot breed successfully without these burrowing mammals, and eventually stop breeding at sites from which they have been eliminated.
- 3) Preserve traditional Burrowing Owl nesting sites. Although Burrowing Owls may not reuse the same nest burrow, they often reuse the same nesting sites.
- 4) Burrowing Owl reproductive success is affected by the abundance of prey. To ensure adequate prey is available, avoid controlling small rodents and insects (particularly grasshoppers, crickets, and beetles) in areas where Burrowing Owls occur, especially within  $\frac{1}{4}$  to  $\frac{1}{2}$  mile (0.4 to 0.8 km) of known nest sites. If insecticides are absolutely necessary, postpone their use until after the end of July, when young owls have left the care of parent birds.
- 5) Minimize human disturbances within  $\frac{1}{4}$  to  $\frac{1}{2}$  mile (0.4 to 0.8 km) of known Burrowing Owl nest sites.
- 6) Avoid fragmenting habitat in known Burrowing Owl nesting areas. Small habitat patches may allow predators to find nests easily.
- 7) In hayfields where Burrowing Owls occur, delay spring mowing as long as possible (preferably until nesting ends in late July), avoid nighttime mowing, and space mowings

as widely as possible in time to allow the greatest probability of successful nesting. However, even haying after July 15<sup>th</sup> may not protect late nesters such as the Burrowing Owl. Consider growing alfalfa for seed or use late-maturing legumes instead of traditional alfalfa management; this would allow cuttings to be delayed.

8) Leave dirt berms at the edge of cultivated fields in areas where Burrowing Owls occur.

9) In areas where burrowing mammals have been exterminated and suitable nest sites are limiting Burrowing Owl reproduction, it may be possible to use artificial nest burrows as a short-term solution.

### ***Short-eared Owl***

Primary Habitat Types: Shortgrass Prairie and Meadows

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Short-eared Owl  (SEOW) <i>Asio flammeus</i> Level I CA	~Grasslands ~Shrub-steppe ~Irrigated native meadows	~High and low structure ~Open, large grasslands ~Dense vegetation to support prey base ~Vegetation height of $\leq 1.6$ feet	~Elevation <7,000 feet	~Both early and late succession ~Fire may increase nesting cover and cover for prey base	~Presence of rodents, especially <i>Microtus</i> spp., necessary ~Long-term or heavy livestock grazing can be detrimental ~Abundance of prey may cause population irruption ~Winters in Mexico

Scattered across Wyoming in open grassland, shrub-steppe, and marsh habitats. Special habitat needs include extensive open grasslands with an abundance of rodents. Nests in a depression on the ground lined with grass and feathers from the female's breast. Nest is often concealed by low vegetation. Eggs (4 to 7, 39 mm) are white. Hunts for prey at dawn and dusk in a low searching flight, and swoops on prey from the air. Feeds primarily on rodents, but will also eat small birds and insects. Winters south to central Mexico. Populations are threatened by rapid urbanization, industrialization, and intensive agriculture in both breeding and wintering habitats. Human disturbance of nesting and wintering areas can also be a problem. Intensive grazing around wetlands can be detrimental to breeding sites. Habitat fragmentation can accentuate the impacts of population fluctuations of their prey. Other species that may benefit from habitat management for this species include the Ferruginous Hawk, Upland

Sandpiper, Horned Lark, Western Meadowlark, Vesper Sparrow, and Savannah Sparrow.

## Population Objectives

- 1) Determine statewide population trend data by implementing “Monitoring Wyoming’s Birds: The Plan for Count-based Monitoring”.
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Short-eared Owls have been detected on 30 BBS routes in Wyoming, including 10 routes on which they were observed a minimum of 3 years.
  - a) Maintain Short-eared Owls on the 30 BBS routes on which they were observed (Figure 19).
  - b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

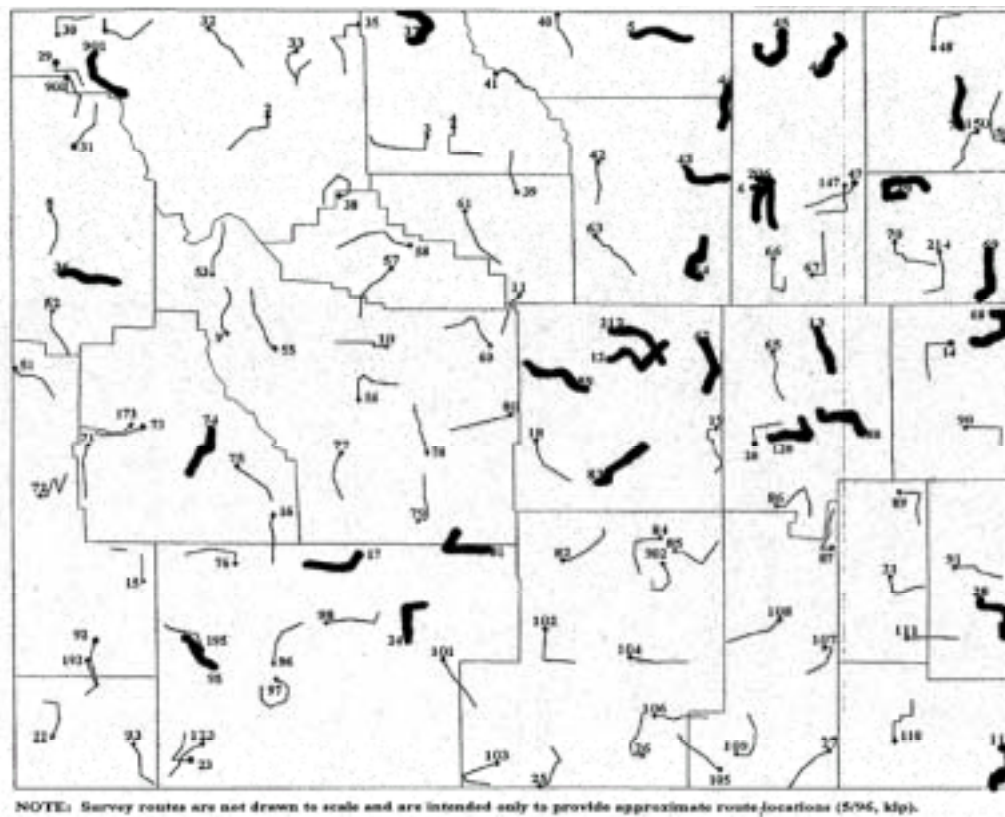


Figure 19. Bold lines indicate Breeding Bird Survey routes on which Short-eared Owls have been observed from 1968 through 2002.

## **Habitat Objectives**

1) Minimize the amount of loss of shortgrass prairie habitat, and reduce urban and suburban sprawl and habitat fragmentation.

## **Recommendations**

- 1) Avoid fragmenting existing tracts of shortgrass prairie habitat.
- 2) Avoid using pesticides for rodent, insect, and grasshopper control in areas where Short-eared Owls occur.
- 3) The breeding season for Short-eared Owls may run into late August, so mowing could be a major factor in nest failure since they often nest in taller grasses. In hayfields where Short-eared Owls occur, delay spring mowing as long as possible (preferably until nesting ends in late July), avoid nighttime mowing, and space mowings as widely as possible in time to allow the greatest probability of successful nesting. However, even haying after July 15<sup>th</sup> may not protect this late-nester. Consider growing alfalfa for seed or use late-maturing legumes instead of traditional alfalfa management; this would allow cuttings to be delayed.
- 4) On a landscape scale, use livestock grazing as a tool to maintain areas of short grass and open ground and areas where large acreages of grasslands are allowed to go to a climax stage for species that require both early and late succession (e.g. Short-eared Owl and Long-billed Curlew).
- 5) Protect existing shortgrass prairie habitat through conservation easements, land purchases, and development of farm and ranch programs that emphasize habitat conservation.

## ***Brewer's Sparrow***

Primary Habitat Types: Shrub-steppe and Mountain-foothills Shrub

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Brewer's Sparrow (BRSP) <i>Spizella breweri</i> Level I CA, M, R	~Sagebrush dominated habitats	~Average nesting-shrub height = 20 inches, range 12 to 26 inches in WY (average 27 inches, range 16.5 to 41 inches in ID; average 16.5 inches in MT)	~Elevation is not a factor in WY; presence of sagebrush is a factor	~Open shrubland habitat, especially sagebrush cover types ~Nests in shrubs that are entirely or mostly alive ~Nests are placed <4 feet above ground ~Average territory size is 1.3 acres (ID)	~Sagebrush obligate ~Nest concealment by sagebrush is very important ~Sensitive to fragmentation of shrub-steppe habitat and spraying or removal of sagebrush ~Common cowbird host ~Winters in Mexico

Found across Wyoming in prairie and foothills shrubland habitat where sagebrush is present. Is a sagebrush obligate species, so is restricted to sagebrush habitats during the breeding season or year-round. Builds a cup nest of grass, rootlets, and forbs, lined with fine materials, low in a live sagebrush shrub or on the ground at the base of a live sagebrush shrub. Eggs (3 to 4, 17 mm) are bluish-green and marked with dark brown. Is a common cowbird host; parasitized nests are occasionally deserted. Feeds on insects and seeds gleaned from the ground. Winters south to central Mexico. Population declines are due to fragmentation and removal of sagebrush habitat. Other species that may benefit from habitat management for this species include the Greater Sage-Grouse, Sage Sparrow, Sage Thrasher, Loggerhead Shrike, Vesper Sparrow, and Lark Sparrow.

### **Population Objectives**

- 1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Brewer's Sparrows have been detected on 112 BBS routes in Wyoming, including 100 routes on which they were observed a minimum of 3 years.
  - a) Maintain Brewer's Sparrows on the 112 BBS routes on which they were observed (Figure 20).

- b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

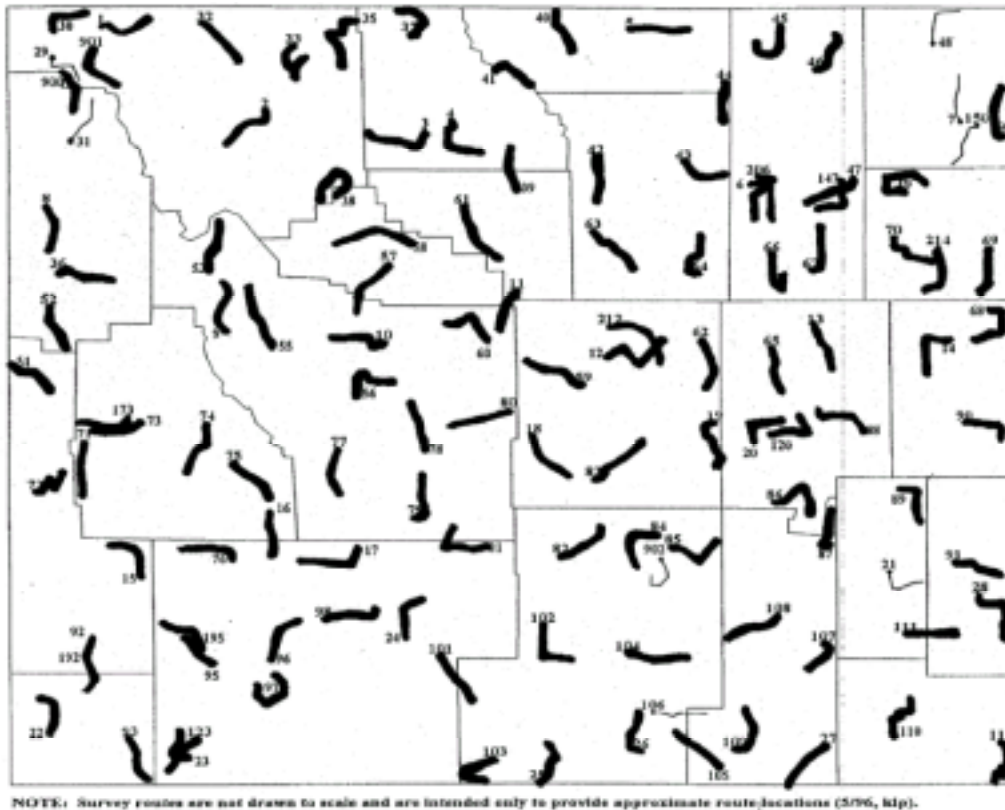


Figure 20. Bold lines indicate Breeding Bird Survey routes on which Brewer's Sparrows have been observed from 1968 through 2002.

### Habitat Objectives

- 1) Maintain dense stands of sagebrush habitat with tall live shrubs, patchy distribution, openings in the canopy for grass seed production, some grass cover for a seed food source, and some bare ground for an insect food source where Brewer's Sparrows occur.
- 2) Within extensive areas of sagebrush habitat, manage for a patchwork or mosaic of native plant communities across the local landscape.
- 3) Abundance of Brewer's Sparrows and other sagebrush obligates is correlated with vegetation structure (e.g. sagebrush density, canopy cover, and vertical structure) in unfragmented sagebrush shrub-steppe habitat. Manage for no net loss of sagebrush habitat on a landscape scale.

## **Recommendations**

- 1) Prevent large-scale fires that will eradicate large, continuous areas of sagebrush or result in cheatgrass invasion, and limit prescribed burns to small-scale fires during the non-breeding season. Brewer's Sparrows favor unburned sagebrush stands over burned stands.
- 2) Minimize sagebrush conversion to nonnative grasslands or croplands.
- 3) Maintain sagebrush in large, continuous stands composed of a mosaic of open (5%) to moderate (25%) shrub cover and a variety of ages and heights. For the Brewer's Sparrow, average live shrub height for nesting is 27 inches (69 cm).
- 4) Maintain herbaceous cover for nest concealment by protecting the current season's growth through the nesting season and by managing for at least 50% of annual vegetative growth to remain through the following nesting season.
- 5) Discourage road construction and other developments where it would reduce sagebrush habitat patch size to less than 50 acres (130 ha).
- 6) Limit the number of roads in sagebrush habitat and consider rehabilitating old roads. In addition to habitat loss through additional road construction, traffic volume (e.g. dust and noise), and displacement by other species more adapted to roads and edge (e.g. Horned Larks) also have effects. Even roads and other developments with low traffic densities affect sagebrush obligate passerines.
- 7) Avoid or minimize insecticide use in shrubland habitats to maintain a food source for Brewer's Sparrows (and other insectivores). Postpone all insecticide use until Brewer's Sparrows and other insectivores have completed their breeding cycle.
- 8) Rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.

## ***Sage Sparrow***

Primary Habitat Types: Shrub-steppe and Mountain-foothills Shrub

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
Sage Sparrow  (SAGS) <i>Amphispiza belli</i> Level I CA, M, R	~Big sagebrush ~Shadscale saltbush ~Antelope bitterbrush ~Rabbitbrush	~Nests in shrubs up to 3.3 feet high ~High shrub cover ( $\geq 30\%$ ) and sagebrush height $> 20$ inches	~Elevation $\leq 6,500$ feet where sagebrush is present	~Tall shrubs, low grass cover, clumped/patchy shrub landscape ~Large patch size, low disturbance, little fragmentation ~5- to 10-acre territory depending on habitat configuration (southern ID)	~Sagebrush obligate and area-sensitive ~Sensitive to fragmentation of shrub-steppe habitat and removal of sagebrush ~Males return to the same territory ~Occasional cowbird host ~Winters in Mexico

Found across most of Wyoming in prairie and foothills shrubland habitat where sagebrush is present. Is a sagebrush obligate species (restricted to sagebrush habitats during the breeding season or year-round) and area-sensitive (requires a large block of unfragmented habitat to successfully breed and survive). Builds a cup nest of twigs, grass, forbs, bark, lined with fine materials, low in a sagebrush shrub near the main stem. Males return to the same territory each year, even if habitat changes have occurred. Eggs (2 to 4, 19 mm) are bluish-white and marked with dark brown. Is an uncommon cowbird host. Feeds on insects and seeds gleaned from the ground and low vegetation. Winters south to northern Mexico. Population declines are due to fragmentation and removal of sagebrush habitat. Other species that may benefit from habitat management for this species include the Greater Sage-Grouse, Brewer's Sparrow, Sage Thrasher, Loggerhead Shrike, Vesper Sparrow, and Lark Sparrow.

### **Population Objectives**

- 1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".
- 2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate Sage Sparrows have been detected on 57 BBS routes in Wyoming, including 36 routes on which they were observed a minimum of 3 years.
  - a) Maintain Sage Sparrows on the 57 BBS routes on which they were observed (Figure 21).

- b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

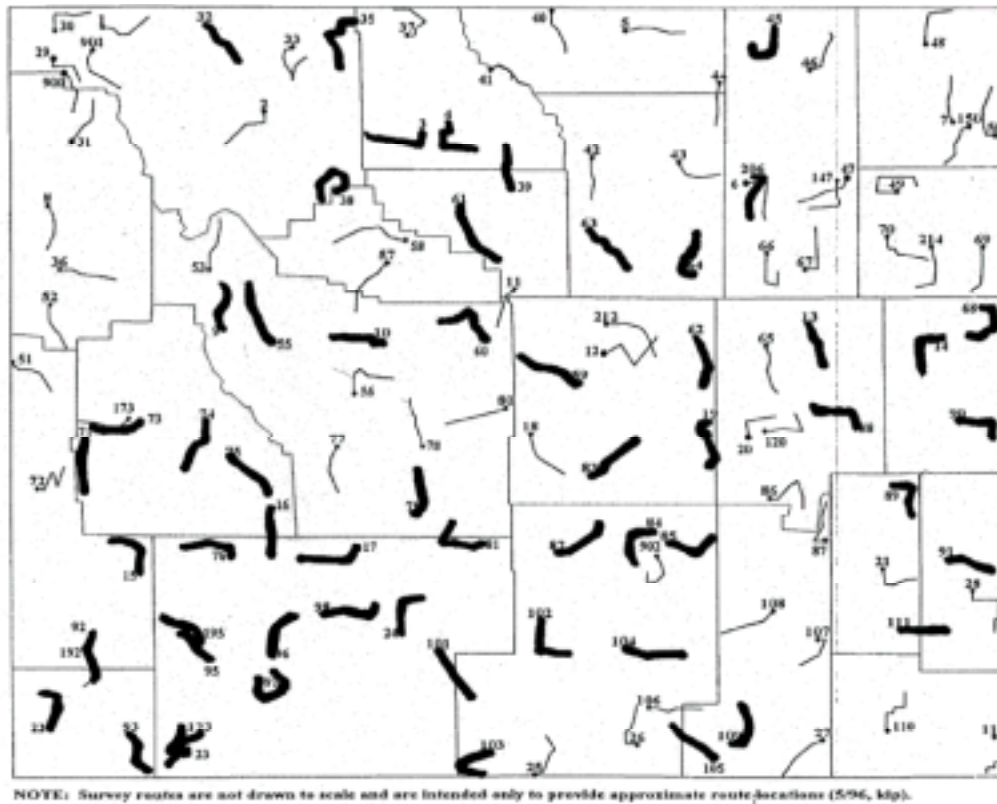


Figure 21. Bold lines indicate Breeding Bird Survey routes on which Sage Sparrows have been observed from 1968 through 2002.

## Habitat Objectives

- 1) Maintain large blocks of unfragmented tall, older, dense stands of sagebrush habitat in areas where Sage Sparrows breed. Sage Sparrows are sensitive to shrub-steppe habitat fragmentation and sagebrush removal, and males return to the same territories, so continuous areas should be greater than 50 acres (130 ha).
- 2) Within the shrub-steppe landscape, provide areas of short vegetation surrounded by sagebrush as important ground-foraging and nesting areas for Sage Sparrows.
- 3) Maintain sagebrush in large, continuous stands composed of a mosaic of open (5%) to moderate (25%) shrub cover and a variety of ages and heights.
- 4) Abundance of Sage Sparrows and other sagebrush obligates is correlated with vegetation structure (e.g. sagebrush density, canopy cover, and vertical structure) in

unfragmented sagebrush shrub-steppe habitat. Manage for no net loss of sagebrush habitat on a landscape scale.

5) Limit the number of roads in sagebrush habitat and consider rehabilitating old roads. In addition to habitat loss through additional road construction, traffic volume (e.g. dust and noise), and displacement by other species more adapted to roads and edge (e.g. Horned Larks) also have effects. Even roads and other developments with low traffic densities affect sagebrush obligate passerines.

## **Recommendations**

1) Prevent large-scale fires that will eradicate large, continuous areas of sagebrush or result in cheatgrass invasion, and limit prescribed burns to small-scale fires during the non-breeding season.

2) Minimize sagebrush conversion to nonnative grasslands or croplands.

3) Maintain herbaceous cover for nest concealment by protecting the current season's growth through the nesting season and by managing for at least 50% of annual vegetative growth to remain through the following nesting season.

4) Where possible, consider rotating livestock use in order to rest units from cowbird concentrations in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] breeding opportunity without high parasitism pressure.

5) Discourage road construction and other developments where it would reduce sagebrush habitat patch size to less than 50 acres (130 ha).

6) Limit the number of roads in sagebrush habitat and consider rehabilitating old roads. Even roads and other developments with low traffic densities affect sagebrush obligate passerines.

7) Avoid or minimize insecticide use in shrubland habitats to maintain a food source for Sage Sparrows (and other insectivores). Postpone all insecticide use until Sage Sparrows and other insectivores have completed their breeding cycle.

## ***Baird's Sparrow***

Baird's Sparrow would appear here, but this species will not be addressed in the Wyoming Bird Conservation Plan because of its current peripheral and limited breeding range in Wyoming. This species will likely be addressed in regional conservation plans. However, other species that would respond similarly to management for this species include the Dickcissel, Bobolink, Grasshopper Sparrow, and Sprague's Pipit.

## ***McCown's Longspur***

Primary Habitat Types: Shortgrass Prairie and Shrub-steppe

SPECIES & STATUS	VEGETATION COMPOSITION	VEGETATION STRUCTURE	ABIOTIC FACTORS	LANDSCAPE FACTORS	SPECIAL FACTORS
McCown's Longspur  (MCLO) <i>Calcarius mccownii</i> Level I CA, M	~Shortgrass prairie ~Mid-grass grasslands ~Basin-prairie shrublands	~Low structure ~Shrub component must be both low density and low height ~Open landscape with low vegetation height		~Early succession ~45 to 80% grass cover and 15 to 25% bare ground for nesting ~Nesting territories 1 to 4 acres	~Livestock grazing may be beneficial ~Uncommon cowbird host ~Winters in Mexico

Found in open, dry, sparsely vegetated areas across most of Wyoming. Prefers shortgrass prairie and basin-prairie shrubland habitats, and also inhabits plowed and stubble fields, grazed pastures, dry lakebeds, and other sparse, bare, dry ground. Prefers territories of 1 to 4 acres (0.5 to 1.5 ha) in size with 45 to 80% grass cover and 15 to 25% bare ground. Builds a simple grass cup nest on the ground in a shallow, natural or scraped depression at the base of grass or cactus. Eggs (3 to 4, 20 mm) are white or light gray to olive, marked with light brown, purple, or gray blotches. Is an uncommon cowbird host. Forages on the ground on weed and grass seeds and insects, especially grasshoppers. Winters south to northern Mexico. Population declines and range contractions are due to loss of breeding and wintering habitat from fire suppression and conversion of prairie habitat to cropland and urbanization. Other species that may benefit from habitat management for this species include the Mountain Plover, Long-billed Curlew, Burrowing Owl, and Horned Lark.

## **Population Objectives**

1) Determine statewide population trend data by implementing "Monitoring Wyoming's Birds: The Plan for Count-based Monitoring".

2) Breeding Bird Survey (BBS) data from 1968 through 2002 indicate McCown's Longspurs have been detected on 28 BBS routes in Wyoming, including 16 routes on which they were observed a minimum of 3 years.

- a) Maintain McCown's Longspurs on the 28 BBS routes on which they were observed (Figure 22).
- b) Maintain the average number of individuals observed per route over the past 5 years at a level equal to or above the average number of individuals observed during all years the route was run.

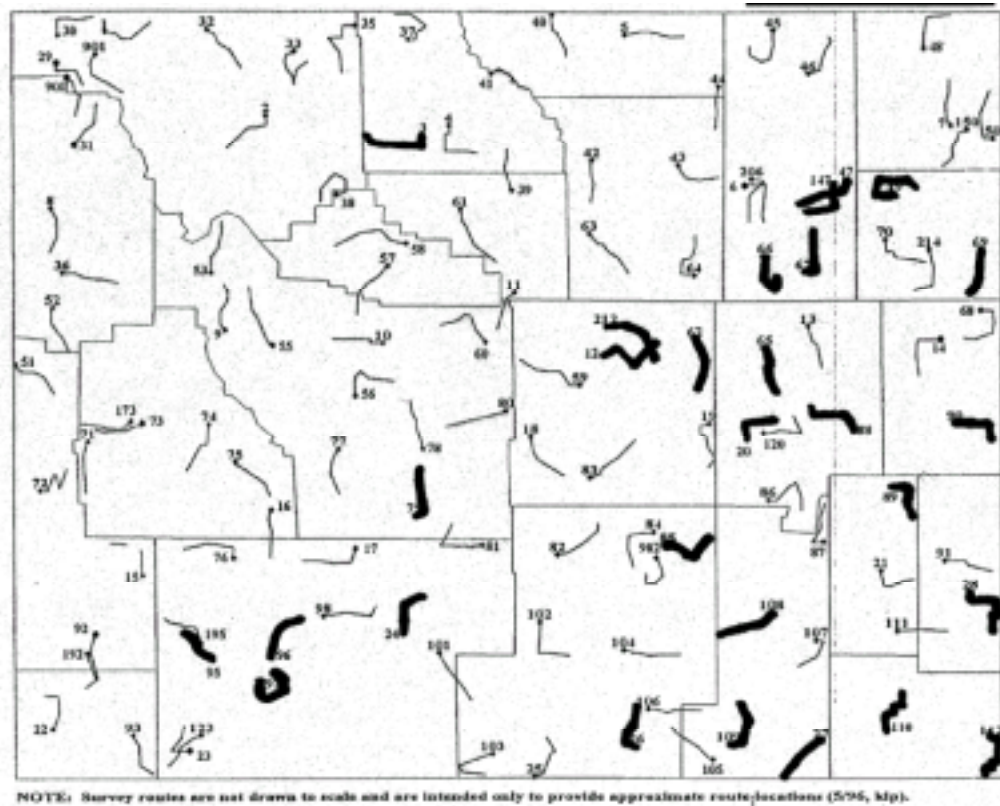


Figure 22. Bold lines indicate Breeding Bird Survey routes on which McCown's Longspurs have been observed from 1968 through 2002.

## Habitat Objectives

- 1) Minimize loss of shortgrass prairie habitat by reducing urban and suburban sprawl, habitat fragmentation, and habitat conversion.
- 2) Within the shortgrass prairie habitat on a landscape scale, maintain portions in low structure, an early seral stage, and with some bare ground in a mosaic that is well distributed throughout this habitat type. McCown's Longspurs prefer territories of 1 to 4 acres (0.5 to 1.5 ha) in size with 45 to 80% grass cover and 15 to 25% bare ground.

## **Recommendations**

- 1) Use prescribed burning in late summer or early fall to reduce shrub density and structure.
- 2) At a landscape level, use grazing as a tool to maintain areas of short grass and open ground. Livestock grazing should occur in the spring prior to the breeding season. Avoid grazing vegetation that is already sparse and short, especially where precipitation is typically low.
- 3) Avoid fragmenting existing tracts of shortgrass prairie habitat.
- 4) Avoid tilling existing shortgrass prairie habitat and seeding with exotic grasses, or converting native prairie to cropland. McCown's Longspurs do not nest successfully in tall, nonnative grasses or croplands.
- 5) Protect areas traditionally used by McCown's Longspurs, as some individuals return to the same sites year after year.
- 6) Avoid or limit insect control, especially grasshoppers, in areas where McCown's Longspurs occur. Postpone all insecticide use until McCown's Longspurs (and other insectivores) have completed their breeding cycle.
- 7) Where cowbird nest parasitism occurs, rotate livestock use during the songbird breeding season in order to rest units from cowbird concentration in alternate years and to give local songbird populations [within a radius of 4 miles (6.5 km)] the opportunity to nest without high parasitism pressure.